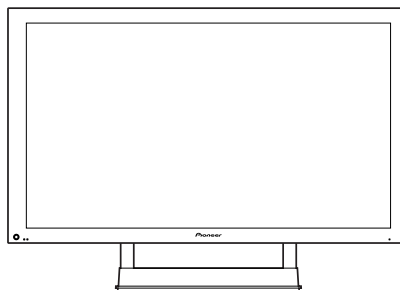


Service Manual



PDP-5071PU

ORDER NO.
ARP3354

PLASMA DISPLAY SYSTEM

PDP-5071PU PDP-5070PU

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-5071PU	KUCXC	AC 120 V	
PDP-5070PU	KUCXC	AC 120 V	

This service manual should be used together with the following manual(s).

Model No.	Order No.	Remarks
PDP-5071PU, PDP-5070PU	ARP3355	SCHEMATIC DIAGRAM, PCB CONNECTION DIAGRAM



For details, refer to "Important Check Points for good servicing".

1. NOTES ON SERVICE VISIT

1.1 SAFETY INFORMATION



This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65



NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

The following precautions should be observed :

1. When service is required, even though the PDP UNIT an isolation transformer should be inserted between the power line and the set in safety before any service is performed.
2. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacture's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacture has become defective, or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and servicetechnician.
 6. Perform the following precautions against unwanted radiation and rise in internal temperature.
 - Always return the internal wiring to the original styling.
 - Attach parts (Gasket, Ferrite Core, Ground, Rear Cover, Shield Case etc.) surely after disassembly.
 7. Perform the following precautions for the PDP panel.
 - When the front case is removed, make sure nothing hits the panel face, panel corner, and panel edge (so that the glass does not break).
 - Make sure that the panel vent does not break. (Check that the cover is attached.)
 - Handle the FPC connected to the panel carefully. Twisting or pulling the FPC when connecting it to the connector will cause it to peel off from the panel.
 8. Pay attention to the following.
 - Pay extreme caution when the front case and rear panel are removed because this may cause a high risk of disturbance to TVs and radios in the surrounding.

Leakage Current Cold Check

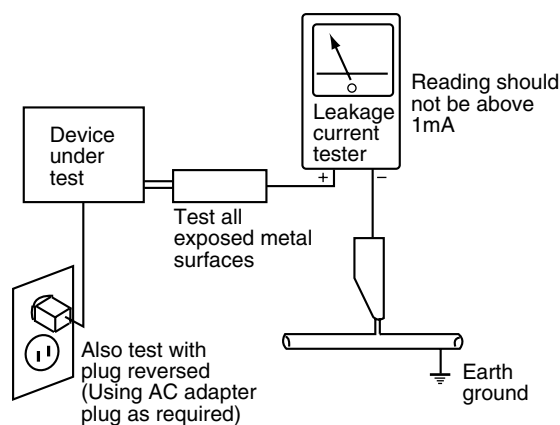
With the AC plug removed from an AC power source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of $4M\Omega$. The below $4M\Omega$ resistor value indicate an abnormality which require corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into an AC power source (do not use an isolation transformer for this check).

Turn the AC power switch on.

Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 1mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■ Charged Section

The places where the commercial AC power is used without passing through the power supply transformer.

If the places are touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. Therefore, be sure to connect the set via an insulated transformer and supply the current.

1. Power Cord
2. AC Inlet
3. Power Switch (S1)
4. Fuse (In the POWER SUPPLY Unit)
5. STB Transformer and Converter Transformer (In the POWER SUPPLY Unit)
6. Other primary side of the POWER SUPPLY Unit

■ High Voltage Generating Point

The places where voltage is 100 V or more except for the charged places described above. If the places are touched, there is a risk of electric shock.

The VSUS voltage remains for several minutes after the power to the unit is turned off. These places must not be touched until about 10 minutes after the power is turned off, or it is confirmed with a tester that there is no residual VSUS voltage.

If the procedures described in “10.3 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM” are performed before the power is turned off, the voltage will be discharged in about 30 seconds.

POWER SUPPLY UNIT	(205 V)
50 X MAIN DRIVE Assy.....	(-180 V to 205 V)
50 X SUB DRIVE Assy.....	(-180 V to 205 V)
50 Y MAIN DRIVE Assy.....	(500 V)
50 Y SUB DRIVE Assy.....	(350 V)
50 SCAN A Assy.....	(500 V)
50 SCAN B Assy.....	(500 V)

- C ■ : Part is Charged Section.
 ■ : Part is the High Voltage Generating Points other than the Charged Section.

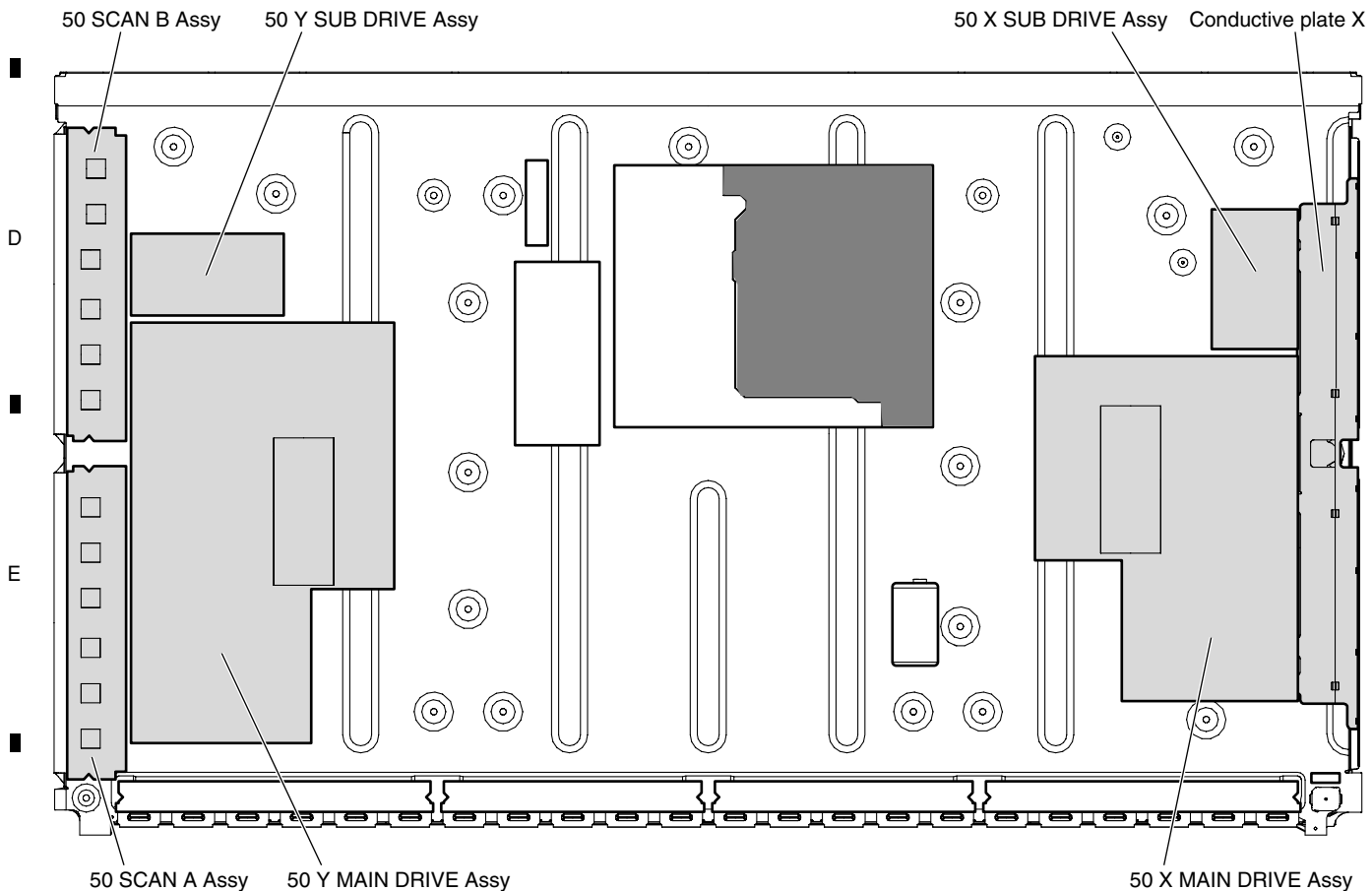


Fig.1 High Voltage Generating Point (Rear view)

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification (addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

1.2 QUICK REFERENCE UPON SERVICE VISIT

Quick Reference upon Service Visit ① Notes, PD/SD diagnosis, and methods for various settings

Notes when visiting for service

1. Notes when disassembling/reassembling

① Rear case

When reassembling the rear case, the screws must be tightened in a specific order. Be careful not to tighten them in the wrong order forcibly. For details, see "Rear Case" in "6. DISASSEMBLY"

② Attaching screws for the HDMI connector

When attaching the HDMI connector after replacing the Main Assy, secure the HDMI connector manually with a screwdriver, but not with an electric screwdriver. If you tighten the screws too tightly with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be untightened/tightened any more.

2. On parts replacement

① How to discharge before replacing the Assys

A charge of significant voltage remains in the Plasma Panel even after the power is turned off. Safely discharge the panel before replacement of parts, in either manner indicated below:

A: Let the panel sit at least for 3 minutes after the power is turned off.

B: Turn the Large Signal System off before the power is turned off then, after 1 minute, turn the power off.

For details, see "10.2 Power ON/OFF Function for the Large-Signal System."

② On the settings after replacement of the Assys

Some boards need settings made after replacement of the Assys.

For details, see "7. ADJUSTMENT"

3. On various settings

① SR+

After a repair using a PC, be sure to restore the setting for the RS-232C connector to SR+.

② Setting in Factory mode

After a Mask indication into the panel is performed, be sure to set the Mask setting to "OFF" then exit Factory mode.

PD/SD		Change of settings	
Item		No. of LEDs flashing	
		Red	Blue
Panel section	Communication with the panel drive IC		Blue 1
	Communication with the module IIC		Blue 2
	DIGITAL-RST2		Blue 3
	Panel high temperature		Blue 4
Main section	Audio		Blue 5
	Communication with the Module microcomputer		Blue 6
	Main 3-wire serial communication		Blue 7
	Main IIC communication		Blue 8
	Communication with the Main microcomputer		Blue 9
	FAN		Blue 10
	Unit high temperature		Blue 11
	Communication with the D-TUNER		Blue 12
MTB-RST2/RST4			Blue 13
POWER		Red 2	
SCAN		Red 3	
SCN-5V		Red 4	
Y-DRIVE		Red 5	
Y-DCDC		Red 6	
Y-SUS		Red 7	
ADRS		Red 8	
X-DRIVE		Red 9	
X-DCDC		Red 10	
X-SUS		Red 11	
UNKNOWN		Red 15	

Change of settings

How to enter Factory mode using the supplied remote control unit

In the same way as with the remote control unit supplied with the 6th-generation model

How to enter Integrator mode using the supplied remote control unit

- Enter the Standby mode.
- Press [MENU].
- Press [TV ⏻].

Release TRAP SW-ERR

- Enter the Factory mode.
- Select the INITIALIZE mode.
- Hold [DISPLAY] pressed for at least 5 seconds.

How to switch UART ① (Integrator)

- Enter the Integrator mode.
- Display "OFF" using [↩].
- Change the communication speed using [↓], then [↩].

How to switch UART ② (During Standby)

- Enter the Standby mode.
- Hold [VOL +] or [VOL -] pressed for 3 seconds.
- Hold [SPLIT] pressed for 3 seconds.
- 4-1 To set to 232C, press [ENTER].
- 5-2 To set to SR+, press [HOME MENU].

Note: If switching is completed successfully, the red LED will flash twice.

Note 1: Use a remote control unit supplied with the 6th-generation models or later.

Note 2: Do not hold a key pressed for more than 5 seconds.

How to locate several items on the Factory menu

- { } : Item on the Factory menu
- [] : Key on the remote control unit
- " " : Screen indication

1. Confirmation of accumulated power-on time and power-on count

Select {INFORMATION} then {HOUR METER}.
(After entering Factory mode, press [↓] four times.)

2. Confirmation of the Power-down and Shutdown histories

① Panel system

PD: Select {PANEL FACTORY} then {POWER DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [↓] three times.)

SD: Select {PANEL FACTORY} then {SHUT DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [↓] four times.)

② Main Assy

Select {INFORMATION} then {MAIN NG}.
(After entering Factory mode, press [↓] three times.)

3. How to display the Mask indication

① Mask indication in the panel side

- Select {PANEL FACTORY} then {RASTER MASK SETUP}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [↓] 8 times.)
- Press [ENTER], then select a Mask indication, using [↑] or [↓].

② Mask (SG screen) indication in the Main Assy (MAIN VDEC)

- Select either Input 1 or 2 or 4, to which no signal is input (black screen).
- Select {INITIALIZE} then {SG MODE}. Press [↩]. (After entering Factory mode, press [MUTING] three times, then press [↓] once.)
Then, the indication at the lower right of the screen changes from "OFF" to "ANA AD YCBCR".
- You can change Mask patterns by pressing [↓] to select {SG PATTERN} then using [↩] or [↩].

Note: When you switch "SG MODE" routes, some displays become monochrome, as they are in Y-signal only mode.

Adjustments and Settings after replacement of the Assys (Procedures in Factory mode)

1. Digital Video Assy: Transfer of backup data

- Select {PANEL FACTORY}, {ETC}, then {BACKUP DATA}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [↓] seven times, then press [ENTER].)
- Select {TRANSFER}, using [↩], then hold [SET] pressed for at least 5 seconds.
- After transfer of backup data is completed, {ETC} is automatically selected, and the LED on the front panel returns to normal lighting.

2. MAIN Assy (U): Execution of FINAL SETUP.

- Select {INITIALIZE} then {FINAL SETUP}, then press [ENTER]. (After entering Factory mode, press [MUTING] three times, then press [↓] four times.)
- Select "YES", using [↩]. Then hold [ENTER] pressed for at least 5 seconds.
- After "FINAL SETUP IS COMPLETE" is displayed on the screen, turn the POWER switch of the main unit off.

3. POWER SUPPLY Unit: Clearance of the accumulated power-on count and maximum temperature value

- Select {PANEL FACTORY}, {ETC}, then {P COUNT INFO}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [↓] seven times, press [ENTER], then press [↓] six times.)
- Press [↩] to select "CLEAR". Hold [SET] pressed for at least 5 seconds.
After clearance is completed, "ETC" is automatically selected. Clear the maximum temperature value (MAX TEMP) in the same manner.

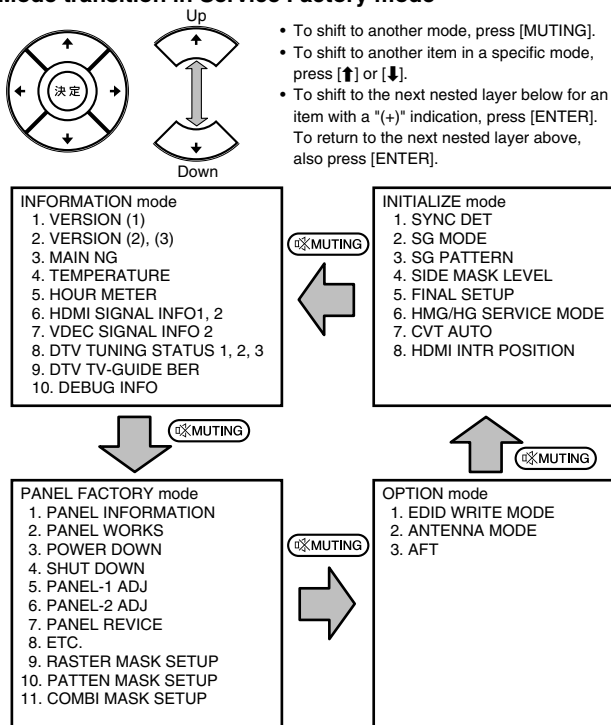
4. Other Assys: Clearance of the maximum temperature value

- Select {PANEL FACTORY}, {ETC}, then {MAX TEMP}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [↓] seven times, press [ENTER], then press [↓] seven times.)
- Press [↩] to select "CLEAR". Hold [SET] pressed for at least 5 seconds.
After clearance is completed, "ETC" is automatically selected.

Quick Reference upon Service Visit ②

Mode transition and structure of layers in Service Factory mode

Mode transition in Service Factory mode



Structure of Layers in Service Factory Mode

INFORMATION mode	
1. VERSION (1)	Flash Versions for PANEL system and MAIN system
2. VERSION (2)	Flash Versions for DTV system
3. VERSION (3)	Flash Versions for CCD ucom and HM
4. MAIN NG	SD histories for MAIN (Going Clear model by SET key)
4-1. CLEAR	Select Yes by [→] key → pushing and hold [SET] key
5. TEMPERATURE	TEMP 1, TEMP2 and FAN mode are displayed
6. HOUR METER	Hour meter and number of Power ON are displayed
6-1. CLEAR	Select Yes by [→] key → pushing and hold [SET] key
7. HDMI SIGNAL INFO 1	For factory use
8. HDMI SIGNAL INFO 2	Signal info of HDMI are displayed (Detail are on SM)
9. VDEC SIGNAL INFO	For factory use
10. DTV TUNING STATUS 1	Detail information for DTV is displayed
11. DTV TUNING STATUS 2	Detail information for DTV is displayed
12. DTV TUNING STATUS 3	Detail information for DTV is displayed
13. DTV TV-GUIDE BER	For production line use
14. DEBUG INFO	For factory use
PANEL FACTORY mode	Refer to [PANEL FACTORY MODE]
OPTION	
1. EDID WRITE MODE	For factory use
2. ANTENNA MODE	For production line use
3. AFT	For production line use
INITIALIZE	
1. SYNC DET (+)	For factory use
2. SG MODE	SG signal from MAIN VDEC (Composite signal is required)
3. SG PATTERN	For factory use
4. SIDE MASK LEVEL(+)	For factory use
4-1. R MASK LEVEL	
4-2. G MASK LEVEL	
4-3. B MASK LEVEL	
5. FINAL SETUP	Set to Factory default settings (it should perform after replacing a MAIN board)
5-1. DATA RESET	Information for a USB device is displayed
6. HMG/HG SERVICE MODE	
6-1. MODE SIFT	
7. CVT AUTO	For factory use
8. HDMI INTR POSITION(+)	For factory use

Structure of Layers in Panel Factory Mode 1

1. PANEL INFORMATION	Version indication of the panel
2. PANEL WORKS	Indications of the accumulated power-on time, pulse-meter count, and power-on count of the panel
3. POWER DOWN	Indication of the Power-down history
4. SHUT DOWN	Indication of the Shutdown history
5. PANEL-1 ADJ (+)	
1. X-SUS B	Modification not required because these items are basically for factory presetting
2. Y-SUS B	
3. Y-SUSTAIL T1	
4. Y-SUSTAIL T2	
5. Y-SUSTAIL W	
6. XY-RST W1	Settings required after replacement of the panel
7. XY-RST W2	
8. VOL SUS	
9. VOL OFFSET	For AM noise prevention (Depending on the mode, brightness of the screen changes.)
10. VOL RST P	
11. SUS FREQ.	
6. PANEL-2 ADJ (+)	
1. R-HIGH	Parameters for the WB adjustment of the panel, which are required during adjustment after panel replacement
2. G-HIGH	
3. B-HIGH	
4. R-LOW	
5. G-LOW	Setting of the power consumption. A setting table is available for each vertical signal.
6. B-LOW	
7. ABL	

To "Structure of Layers in Panel Factory Mode 2"

Structure of Layers in Panel Factory Mode 2

7. PANEL REVISE (+)	
1. R-LEVEL	Items for use by engineers
2. G-LEVEL	
3. B-LEVEL	
8. ETC (+)	
1. BACKUP DATA	For transferring backup data (after replacement of the DIGITAL Assy)
2. DIGITAL EEPROM	To clear data of the digital video
3. PD INFO.	For clearance of data for the corresponding items. The clearing method is the same: Select "CLEAR", using [→], then hold [SET] pressed for at least 5 seconds. After clearance is completed, {ETC} is automatically selected.
4. SD INFO.	
5. HR-MTR INFO.	
6. PM/B1-B5	
7. P COUNT INFO.	
8. MAX TEMP.	
9. RASTER MASK SETUP (+)	
1. MASK OFF	For use while Raster Mask (full mask) is displayed. Use [↑] or [↓] to select the type of mask.
2. RST MASK 01	
25. RST MASK 24	
10. PATTEN MASK SETUP (+)	
1. MASK OFF	For use while Pattern Mask is displayed. Use [↑] or [↓] to select the type of mask.
2. PTN MASK 01	
40. PTN MASK 39	
11. COMBI MASK SETUP (+)	
1. MASK OFF	For use while Combination Mask is displayed. Use [↑] or [↓] to select the type of mask.
2. CMB MASK 01	
11. CMB MASK 10	

1.3 JIGS LIST



■ Cleaning

Name	Part No.	Remarks
Cleaning liquid	GEM1004	Used to fan cleaning. Refer to "2.4 CHASSIS SECTION (1/2).
Cleaning paper	GED-008	

CONTENTS

1. NOTES ON SERVICE VISIT	2
1.1 SAFETY INFORMATION	2
1.2 QUICK REFERENCE UPON SERVICE VISIT	6
1.3 JIGS LIST	8
2. EXPLODED VIEWS AND PARTS LIST	10
2.1 PACKING SECTION	10
2.2 REAR SECTION	12
2.3 FRONT SECTION	14
2.4 CHASSIS SECTION (1/2)	16
2.5 CHASSIS SECTION (2/2)	18
2.6 PANEL CHASSIS SECTION	20
2.7 MULTIBASE SECTION	22
2.8 PDP SERVICE ASSY 507 (AWU1212)	24
2.9 TABLE TOP STAND	26
3. PCB PARTS LIST	27
4. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM	44
4.1 OVERALL CONNECTION DIAGRAM (1/2)	44
4.2 OVERALL CONNECTION DIAGRAM (2/2)	46
4.3 OVERALL BLOCK DIAGRAM (1/2)	48
4.4 OVERALL BLOCK DIAGRAM (2/2)	50
4.5 50 ADDRESS S and L ASSYS	51
4.6 50 SCAN A and B ASSYS	52
4.7 50X MAIN DRIVE and 50X SUB DRIVE ASSYS	53
4.8 50Y MAIN DRIVE and 50Y SUB DRIVE ASSYS	54
4.9 50 DIGITAL ASSY	55
4.10 AUDIO ASSY	56
4.11 SIGNAL BLOCK DIAGRAM	58
4.12 DTV BLOCK DIAGRAM	60
4.13 50 X/Y DRIVE POWER LINE BLOCK DIAGRAM	62
4.14 FUKUGO BLOCK POWER LINE BLOCK DIAGRAM	63
4.15 POWER SUPPLY UNIT	64
4.16 VOLTAGES	65
4.17 WAVEFORMS	78
5. DIAGNOSIS INFORMATION	82
5.1 THE FLOW OF DIAGNOSIS	82
5.1.1 FLOWCHART OF FAILURE ANALYSIS FOR THE WHOLE UNIT	82
5.1.2 FLOWCHART OF FAILURE ANALYSIS FOR THE POWER SUPPLY UNIT	84
5.1.3 FLOWCHART OF FAILURE ANALYSIS FOR THE DIGITAL ASSY	85
5.1.4 FLOWCHART OF FAILURE ANALYSIS FOR THE DRIVE ASSY	86
5.1.5 FLOWCHART OF FAILURE ANALYSIS FOR THE MAIN ASSY	90
5.1.6 FLOWCHART OF FAILURE ANALYSIS FOR THE VIDEO SYSTEM	91
5.1.7 FLOWCHART OF FAILURE ANALYSIS FOR THE AUDIO SYSTEM	97
5.2 POWER DOWN	101
5.2.1 BLOCK DIAGRAM OF THE POWER-DOWN SIGNAL	101
5.2.2 POWER DOWN OF FAILURE ANALYSIS	102
5.3 SHUT DOWN	104

5	6	7	8
5.3.1 BLOCK DIAGRAM OF THE SHUT-DOWN SIGNAL	104		
5.3.2 SHUT DOWN OF FAILURE ANALYSIS	105		
5.4 NON-FAILURE SYMPTOMS	106		
6. DISASSEMBLY	107		
6.1 PCB LOCATION	107		A
6.2 FLOWCHART OF THE MAIN PARTS AND PC BOARDS EXCHANGE	108		
7. ADJUSTMENT	113		
7.1 PARTS CHANGE OF NOTES.....	113		
7.2 ADJUSTMENT REQUIRED WHEN THE SET IS REPAIRED OR REPLACED.....	113		
7.3 ADJUSTMENT REQUIRED WHEN PART IS REPLACED.....	114		
7.4 BACKUP WHEN THE PANEL UNIT IS ADJUSTED	115		
7.5 EXCHANGE OF SERVICE PANEL ASSY.....	118		
7.5.1 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED.....	118		
7.6 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED.....	125		
7.7 HOW TO CLEAR HISTORY DATA	128		
7.8 PROCEDURE WHEN REPLACING THE POWER SUPPLY UNIT.....	129		
8. SERVICE FACTORY MODE	130		B
8.1 SERVICE FACTORY MODE OUTLINE	130		
8.1.1 TRANSITION DIAGRAM OF SERVICE FACTORY MODE	130		
8.1.2 HOW TO ENTER/EXIT SERVICE FACTORY MODE	130		
8.1.3 OPERATION OF SERVICE FACTORY MODE.....	131		
8.1.4 REMOTE CONTROL CODE	132		
8.1.5 CONFIGURATION OF FACTORY MODE	133		
8.1.6 INDICATION (OSD) OF SERVICE FACTORY MODE	134		
8.2 FACTORY MENU.....	136		
8.2.1 INFORMATION.....	136		
8.2.2 PANEL FACTORY MODE.....	145		
8.2.3 OPTION MODE.....	155		C
8.2.4 INITIALIZE MODE.....	156		
9. LIST OF RS-232C COMMANDS	161		
9.1 RS-232C COMMANDS OUTLINE	161		
9.1.1 PREPARED TOOLS	161		
9.1.2 USING RS-232C COMMANDS.....	161		
9.1.3 COMMAND PROTOCOL.....	162		
9.1.4 DEFINITION OF COMMAND	163		
9.2 LIST OF RS-232C COMMANDS.....	164		
9.3 OUTLINE OF COMMANDS.....	170		
9.3.1 QS1	170		
9.3.2 QS2	171		
9.3.3 QIP	172		D
9.3.4 QAJ	172		
9.3.5 QPW.....	173		
9.3.6 QPM	173		
9.3.7 QPD.....	174		
9.3.8 QSD.....	175		
9.3.9 QS6	176		
9.3.10 QSI	177		
9.3.11 QMT	178		
9.3.12 QNG	178		
9.3.13 DRV	179		
9.3.14 COMMANDS FOR PROHIBITION/PERMISSION OF DTV/HOMENET COMMUNICATION	180		E
9.3.15 OTHER COMMANDS	181		
10. GENERAL INFORMATION	182		
10.1 POWER ON SEQUENCE.....	182		
10.2 POWER SUPPLY TRANSITION STATUS.....	183		
10.3 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM.....	186		
10.4 LED INFORMATION	187		
10.5 SPECIFICATION ABOUT THE THERMAL PROTECTION.....	188		
10.6 PROCESSING IN ABNORMALITY	189		
10.7 TRAP SW.....	190		
11. SPECIFICATIONS	191		
11.1 MAIN SPECIFICATIONS	191		
11.2 ACCESSORIES.....	192		F
11.3 PANEL FACILITIES.....	193		
12. IC INFORMATION	196		

△

C

D



(1) PACKING PARTS LIST

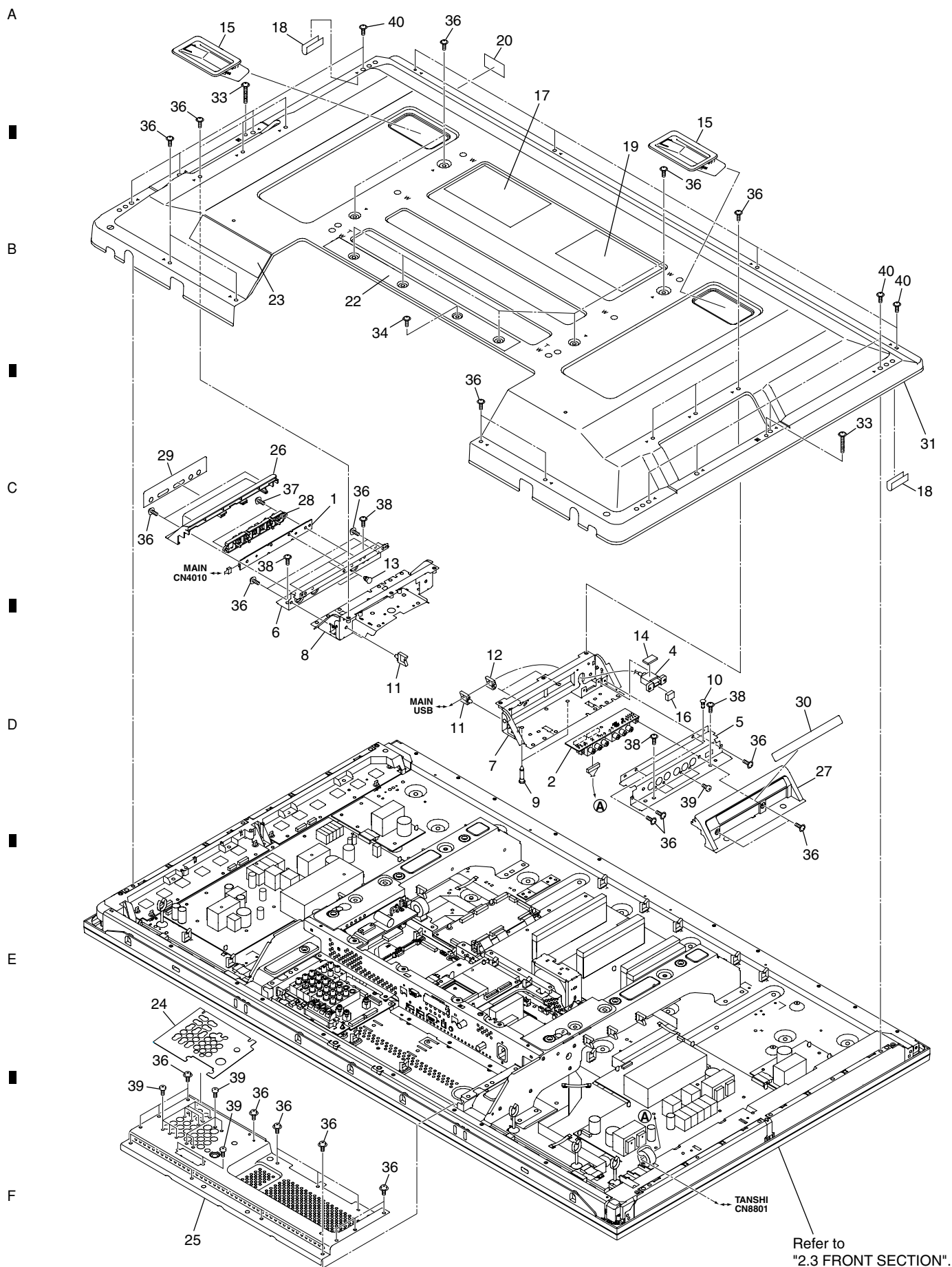
Mark No.	Description	Part No.	Mark No.	Description	Part No.	
△ 1	Power Cord (2 m)	ADG1215	16	Accessory Caution	ARM1304	A
2	G-LINK Cable (3 m)	VDX1010	NSP 17	Warranty Card	ARY1196	
3	Remote Control Unit	AXD1536	NSP 18	Card (Register)	ARY1156	
4	Battery Cover	AZN2680	19	Polyethylene Bag	AHG1394	
5	Simplified Remote Control Unit	See Contrast table (2)	20	Vinyl Bag	AHG1347	
6	Battery Cover	See Contrast table (2)	21	Pad (507REG. T-L)	AHA2571	
NSP 7	Alkaline Dry Cell Battery (LR6, AA)	VEM1023	22	Pad (507REG. T-R)	AHA2572	
NSP 8	Dry Cell Battery (R03, AAA)	See Contrast table (2)	23	Pad (507REG. B-L)	AHA2573	
9	Filter	CTX1054	24	Pad (507REG. B-R)	AHA2574	
10	Binder Assy	AEC1908	25	Pad (507EL. B-ACC.)	AHA2575	
NSP 11	Hexagonal Wrench (6 mm)	AEF1029	26	Under Carton (507REG)	AHD3484	B
12	Cleaning Cloth	AED1285	27	Upper Carton (507REG)	See Contrast table (2)	
13	Operating Instructions (English, French, Spanish)	ARE1426	28	Packing Sheet L	AHG1389	
14	Caution Card	ARM1239	29	Polyethylene Bag S	AHG1395	
15	Cleaning Caution (U)	ARM1303				

(2) CONTRAST TABLE

PDP-5071PU/KUCXC and PDP-5070PU/KUCXC are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-5071PU /KUCXC	PDP-5070PU /KUCXC
NSP	5	Simplified Remote Control Unit	AXD1539	Not used
	6	Battery Cover	AZN2682	Not used
	8	Dry Cell Battery (R03, AAA)	VEM1036	Not used
	27	Upper Carton	AHD3485	AHD3523

2.2 REAR SECTION



(1) REAR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	SIDE KEY Assy	AWW1133	21	Side Spacer 507	AED1311	
2	SIDE Assy	AWW1157	22	Terminal Display Label A (U/B)	AAX3325	A
3	•••••		23	Terminal Display Label C (U/B)	AAX3330	
4	USB Cable 120 cm (J301)	ADF1034	24	Terminal Display Label B50 (U/B)	AAX3414	
5	Side Input Panel (U)	ANC2392	25	Terminal Panel B (50U)	ANC2409	
6	Function Button Base	ANG2923	26	Function Button Panel	AMB2906	
7	Side Input Shield	ANK1834	27	Side Input Cover	AMB2911	
8	Function Button Shield	ANK1835	28	Function Button	AAC1562	
NSP 9	PCB Support	AEC1288	29	Function Button Sheet (U)	AAK2895	
10	PCB Spacer	AEC1570	30	Input Cover Label U	AAX3363	
11	Wire Saddle	AEC1745	31	Rear Case (507)	ANE1656	B
12	Re-use Wire Saddle	AEC1945	32	•••••		
13	Locking Card Spacer	AEC2019	33	Screw (3 x 40P)	ABA1332	
14	USB Spacer	AED1310	34	Screw	ABA1341	
15	Inner Grip Assy	AMR3434	35	•••••		
16	Gasket (USB)	ANK1846	36	Screw	AMZ30P060FTB	
NSP 17	Name Label (507PU)	See Contrast table (2)	37	Screw	AMZ30P080FTC	
18	Side Spacer 507	AED1311	38	Screw	APZ30P080FTB	
19	Bolt Caution Label	AAX3075	39	Screw	BPZ30P080FTB	
NSP 20	Serial Seal	AAX3182	40	Screw	TBZ40P080FTB	C

(2) CONTRAST TABLE

PDP-5071PU/KUCXC and PDP-5070PU/KUCXC are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-5071PU /KUCXC	PDP-5070PU /KUCXC
NSP	17	Name Label	AAL2766	AAL2810

1 2 3 4

2.3 FRONT SECTION

A

B

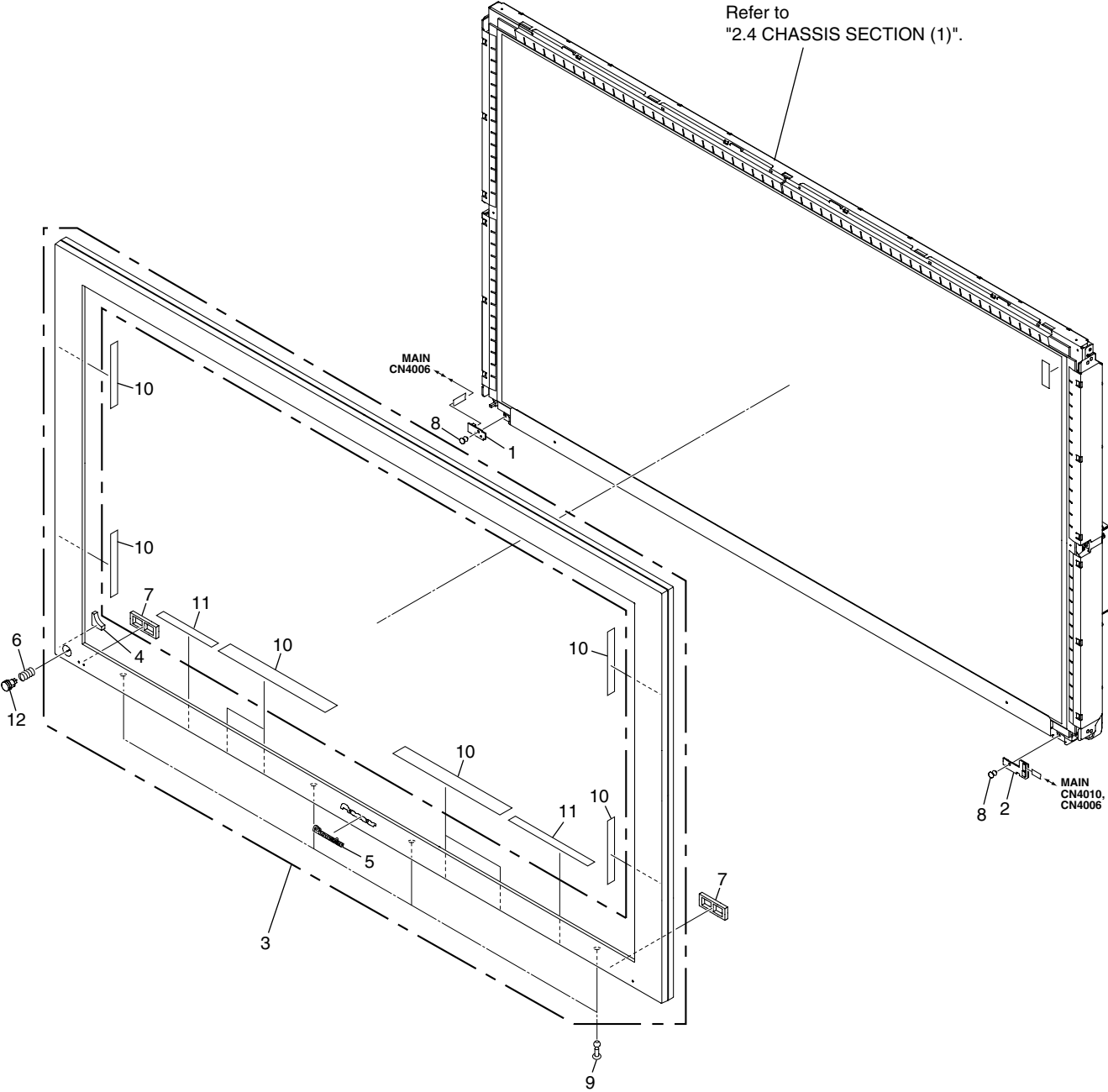
C

D

E

F

Refer to
"2.4 CHASSIS SECTION (1)".



(1) FRONT SECTION PARTS LIST

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	50 LED Assy	AWW1135
2	LED IR Assy	AWW1136
3	Front Case Assy (507PU)	AMB2917
4	Corner Cushion	AEB1416
5	Pioneer Name Plate	AAM1098
6	Coil Spring	ABH1120
7	Blind Cushion	AEB1415
8	Nyron Rivet	AEC1671
9	Screw Rivet	AEC1877
10	Insulation Sheet A	AED1283
11	Insulation Sheet B	AED1284
12	Power Button	AAD4133

2.4 CHASSIS SECTION (1/2)

A

B


C

D

E

F

Refer to
"2.7 MULTI BASE SECTION".

 Cleaning liquid : GEM1004
Cleaning paper : GED-008

MAIN
CN4009

POWER
P10
POWER
P3
AC inlet

Refer to
"2.5 CHASSIS SECTION (2)".

PDP-5071PU

CHASSIS SECTION (1/2) PARTS LIST

Mark	No.	Description	Part No.	
⚠	1	Power Switch (S1)	ASG1092	
	2	Ferrite Core	ATX1044	A
	3	Fan Motor 80 x 25L	AXM1058	
	4	Housing Wire (J103)	ADX3352	
	5	Front Chassis VL (50)	AMA1014	
	6	Front Chassis VR (507)	AMA1022	
	7	Sub Frame L Assy 507	ANA1945	
	8	Sub Frame R Assy 507	ANA1946	
	9	Front Chassis H Assy (507)	ANA2031	
	10	Panel Holder H (50)	ANG2769	
	11	Panel Holder V1 (50)	ANG2770	B
	12	Panel Holder V2 (50)	ANG2771	
	13	Fan Holder	ANG2833	
	14	Multi Base Holder	ANG2937	
	15	Floating Rubber 80	AEB1427	
	16	PCB Spacer	AEC1570	
	17	Wire Saddle	AEC1745	
	18	Ferrite Core Holder	AEC1818	
	19	Re-use Wire Saddle	AEC1945	
	20	•••••		C
	21	Screw	ABA1313	
	22	Screw	ABZ30P080FTC	
	23	Screw	AMZ30P060FTB	
	24	Screw	APZ30P080FTB	
	25	Screw	BBZ30P060FTC	
	26	Screw	BPZ30P080FTB	
	27	Screw	TBZ40P080FTB	
	28	Screw	ABA1364	D

2.5 CHASSIS SECTION (2/2)

A

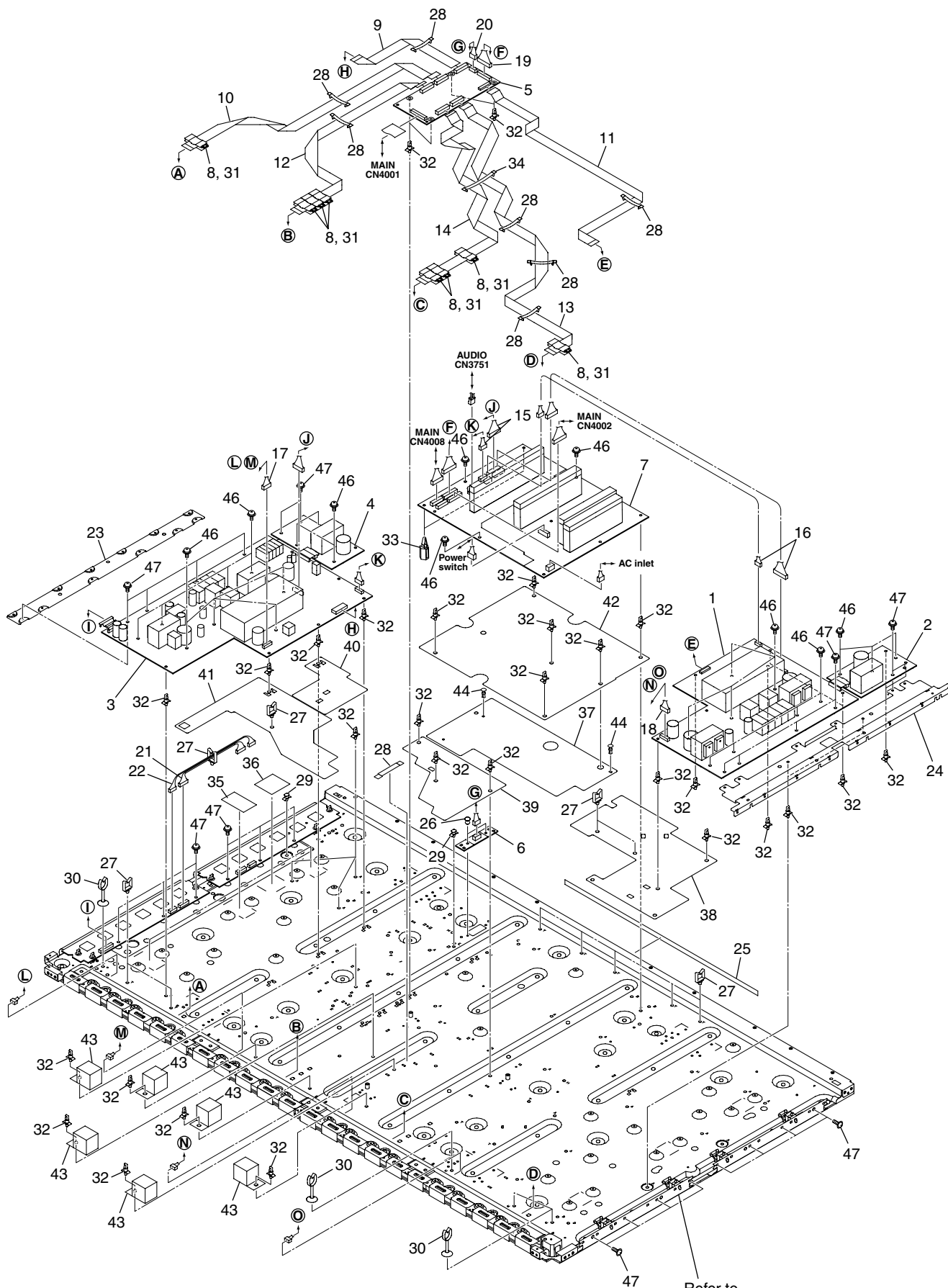
B

C

D

E

F



CHASSIS SECTION (2/2) PARTS LIST

Mark No.	Description	Part No.	
1	50 X MAIN DRIVE Assy	AWW1143	
2	50 X SUB DRIVE Assy	AWW1144	A
3	50 Y MAIN DRIVE Assy	AWW1145	
4	50 Y SUB DRIVE Assy	AWW1146	
5	50 DIGITAL Assy	AWW1139	
6	SENSOR Assy	AWW1140	
△ 7	POWER SUPPLY Unit	AXY1153	■
8	Ferrite Core	ATX1048	
9	Flexible Cable (J201)	ADD1435	
10	Flexible Cable (J202)	ADD1436	
11	Flexible Cable (J206)	ADD1440	B
12	Flexible Cable (J203)	ADD1463	
13	Flexible Cable (J205)	ADD1465	
14	Flexible Cable (J204)	ADD1466	
15	9P&6/5P Housing Wire (J101)	ADX3337	
16	8P&5P Housing Wire (J102)	ADX3338	■
17	8P/4P Housing Wire (J108)	ADX3339	
18	8P/4P Housing Wire (J109)	ADX3340	
19	14P Housing Wire (J105)	ADX3354	
20	5P Housing Wire (J110)	ADX3359	C
21	10P Housing Wire (J122)	ADX3300	
22	4P Housing Wire (J119)	ADX3346	
23	Conductive Plate Y	ANG2902	
24	Conductive Plate X	ANG2905	
25	Cushion	AEB1424	■
26	Nyron Rivet	AEC1671	
27	Wire Saddle	AEC1745	
28	Flat Clamp	AEC1879	
29	PCB Support	AEC1938	
30	Harness Lifter 28	AEC1982	D
31	Ferrite Clamp	AEC1986	
32	Re-use PCB Spacer	AEC2087	
33	Tapping Card Spacer	AEC2103	
34	Flat Clamp 60	AEC2104	■
35	Drive Silicone Sheet B	AEH1109	
36	Drive Silicone Sheet C	AEH1110	
37	Power Supply Sheet B (507)	AMR3555	
38	Address Sheet A	AMR3628	E
39	Address Sheet B	AMR3629	
40	Address Sheet E	AMR3645	
41	Address Sheet F	AMR3646	
42	Power Supply Sheet (507)	AMR3634	■
43	Gasket AV8	ANK1881	
44	Rivet A	BEC1158	
45		
46	Screw	ABA1313	
47	Screw	ABA1364	F

1 2 3 4

2.6 PANEL CHASSIS SECTION

A

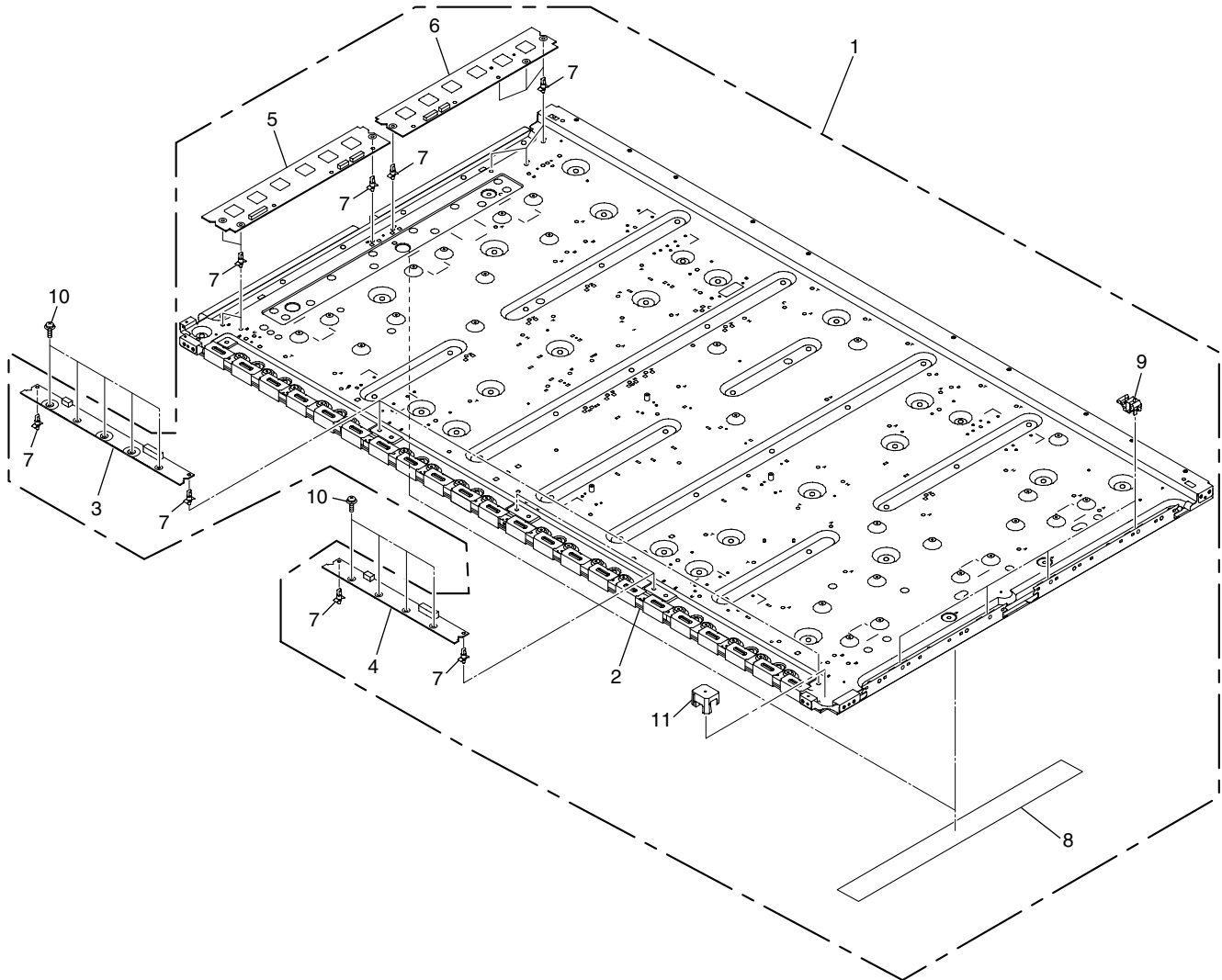
B

C

D

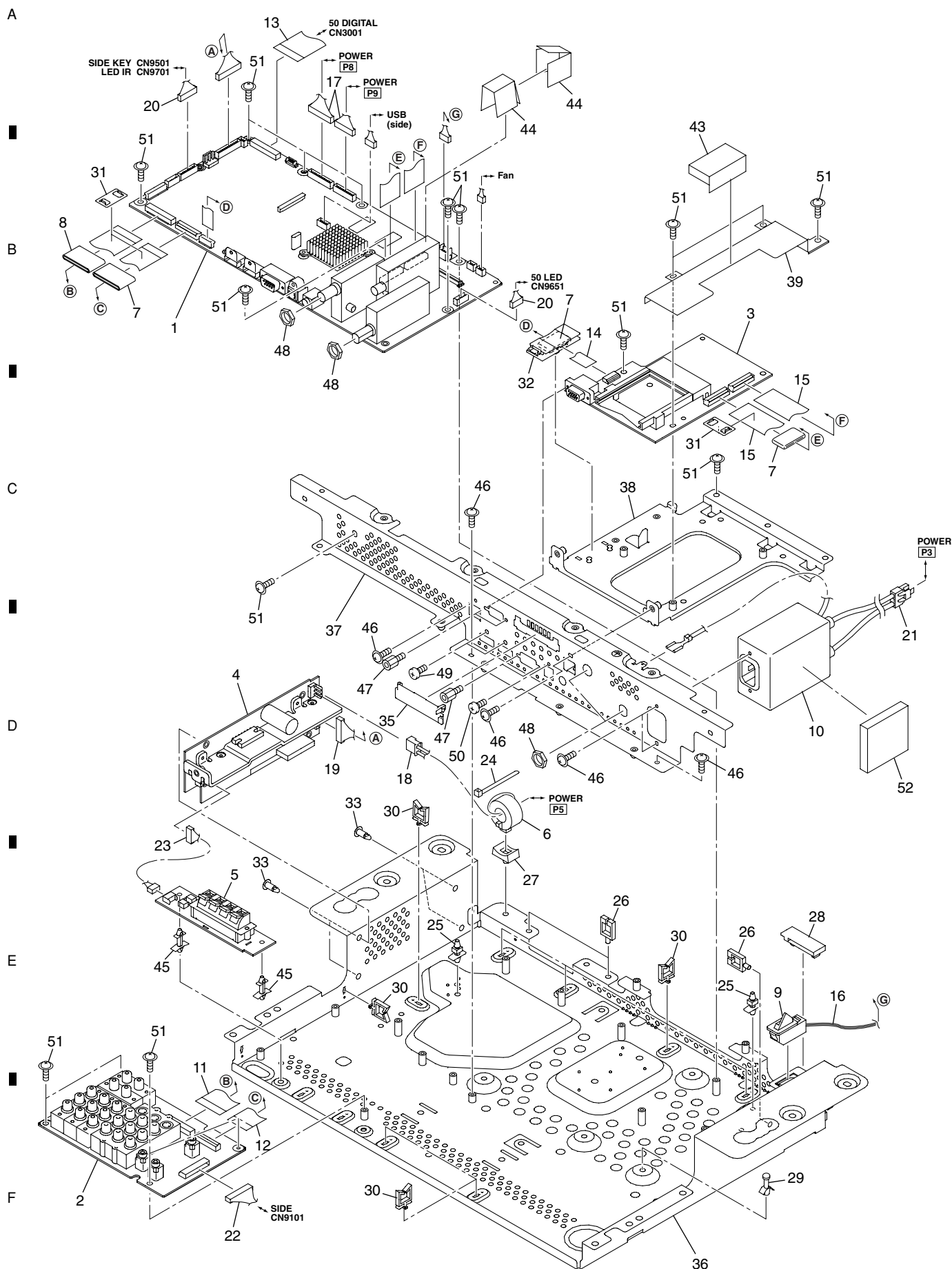
E

F



	5		6	7	8	
PANEL CHASSIS SECTION PARTS LIST						
<u>Mark No.</u>		<u>Description</u>	<u>Part No.</u>			
NSP 1		Panel Chassis (507) Assy	AWU1148			
NSP 2		Plasma Panel (50DC) Assy	AWU1162			A
NSP 3		50 ADDRESS L Assy	AWW1141			
NSP 4		50 ADDRESS S Assy	AWW1142			
NSP 5		50 SCAN A Assy	AWW1147			
NSP 6		50 SCAN B Assy	AWW1148			
	7	Re-use PCB Spacer	AEC2088			
NSP 8		Adhesive Tape (50)	AEH1119			
	9	Conductive Plate Holder	AMR3446			
	10	Screw	ABA1351			
NSP 11		Tube Cover	AMR3445			B

2.7 MULTIBASE SECTION



PDP-5071PU

MULTIBASE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	MAIN Assy	AWV2312	41		
2	TANSHI Assy	AWW1156	42		A
3	POD Assy	AWW1154	⚠ 43	Gasket UB	ANK1867	
4	AUDIO Assy	AWW1131	44	Tuner Shield	ANK1875	
5	SP TERMINAL Assy	AWW1132	45	Locking Card Spacer	AEC2093	
6	Ferrite Core	ATX1044	46	Screw	AMZ30P060FTB	
7	Ferrite Core	ATX1048	47	Hex. Head Screw	BBA1051	
8	Ferrite Core	ATX1064	48	Nut	BBN1005	
⚠ 9	Power Switch (S2)(TRAP)	ASG1089	49	Screw	BMZ30P060FTB	
⚠ 10	AC Inlet (CN1)	AKP1301	50	Screw	BPZ30P080FTB	
11	Flexible Cable (J210)	ADD1441	51	Screw	PMB30P080FNI	B
12	Flexible Cable (J211)	ADD1442	52	Inlet Spacer	AEC2112	
13	Flexible Cable (J207)	ADD1445				
14	Flexible Cable (J213)	ADD1446				
15	Flexible Cable (J214)(J215)	ADD1447				
16	3P Housing Wire (J121)	ADX3348				
17	13P&11P Housing Wire (J106)	ADX3355				
18	3P Housing Wire (J107)	ADX3356				
19	11P Housing Wire (J111)	ADX3360				
20	7/6/4/3P Housing Wire (J113)	ADX3341				C
21	Housing Wire (J104)	ADX3353				
22	14P Housing Wire (J116)	ADX3344				
23	8/4P Housing Wire (J117)	ADX3345				
24	Binder	AEC-093				
25	Locking Card Spacer	AEC1429				
26	Wire Saddle	AEC1745				
27	Ferrite Core Holder	AEC1818				
28	Clamp	AEC1884				
29	Card Spacer	AEC1889				D
30	Re-use Wire Saddle	AEC1945				
31	Ferrite Stopper	AEC1981				
32	Ferrite Clamp	AEC1986				
33	Locking Card Spacer	AEC2019				
34					
35	POD Cover	AMR3542				
36	Multi Base (U) Assy	ANA1951				
37	Terminal Panel A (U/B)	ANC2394				
38	POD Stay A	ANG2933				E
39	Tuner Stay U	ANG3028				
40					

2.8 PDP SERVICE ASSY 507 (AWU1212)

A

Note:

The parts labeled here with circled numbers are supplied with the Assy for service. Attach them, referring to this diagram.

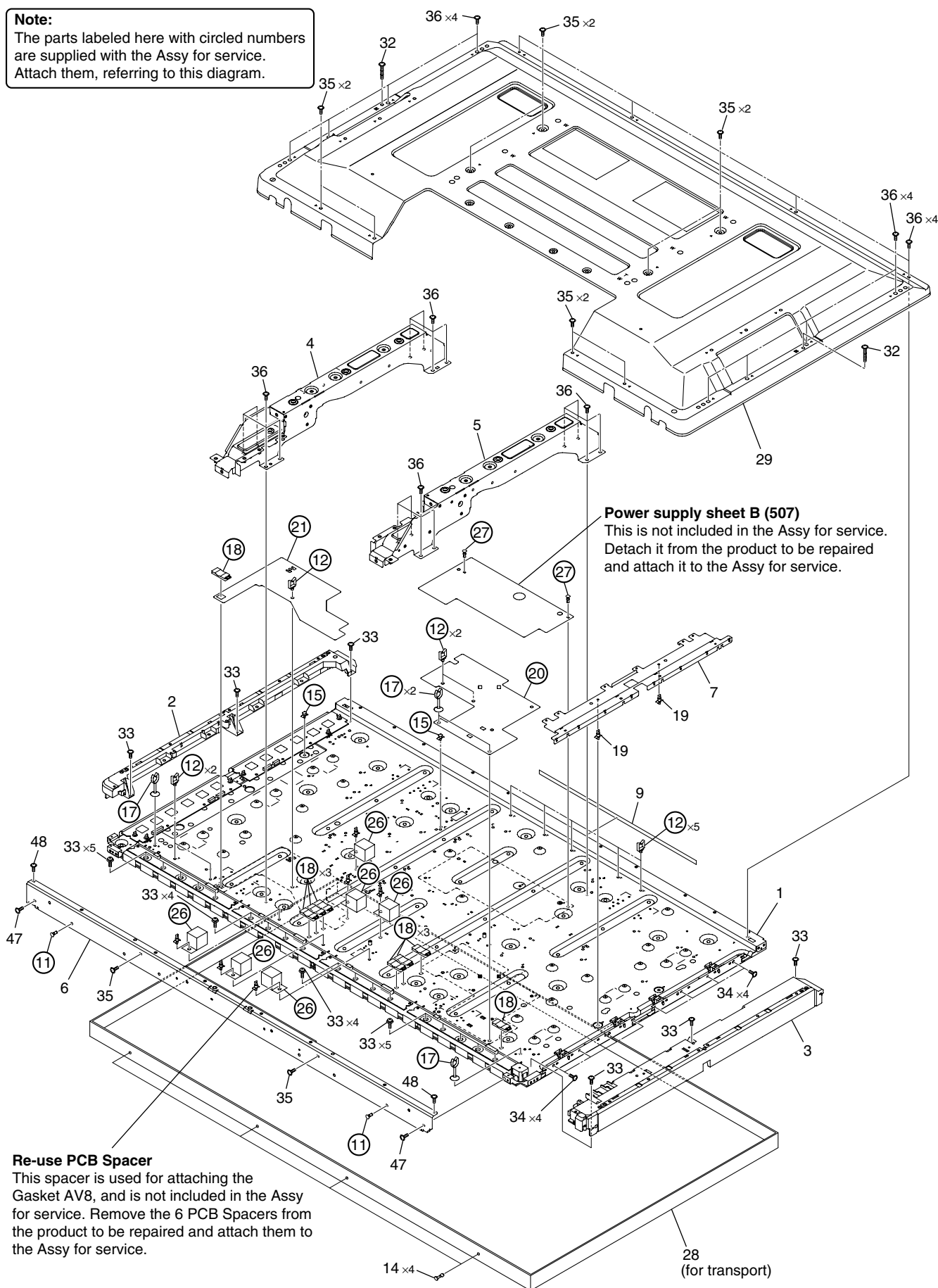
B

C

D

E

F



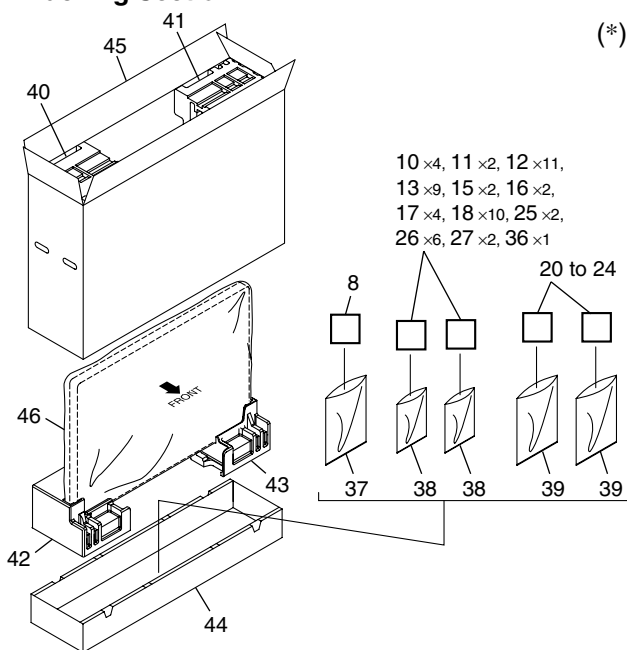
Re-use PCB Spacer

This spacer is used for attaching the Gasket AV8, and is not included in the Assy for service. Remove the 6 PCB Spacers from the product to be repaired and attach them to the Assy for service.

Power supply sheet B (507)

This is not included in the Assy for service. Detach it from the product to be repaired and attach it to the Assy for service.

● Packing Section



(*)

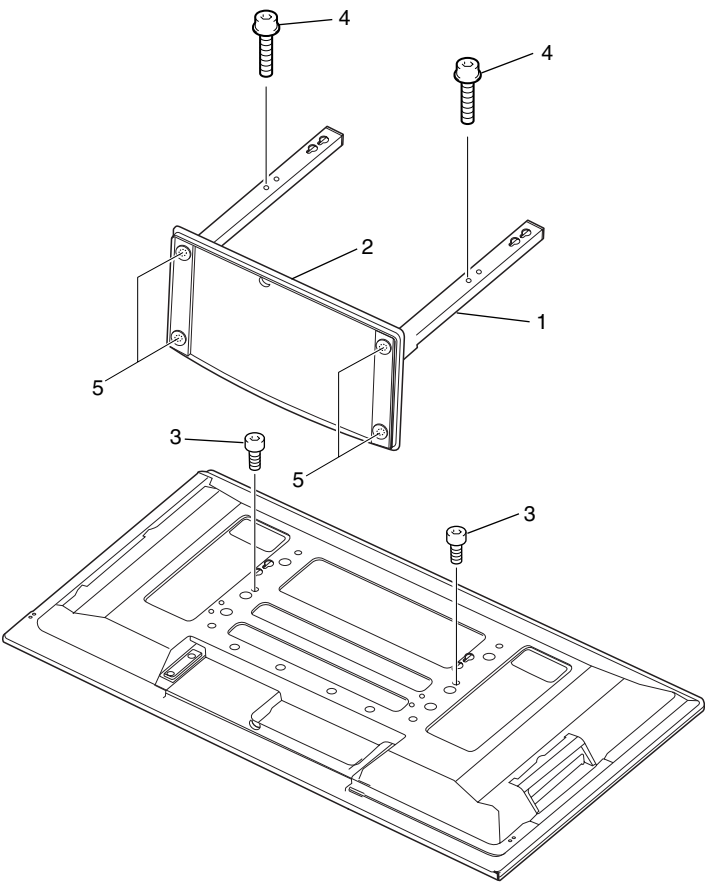
No.	Part Name	Part No.	No. of pcs	Remarks
8	Clamp base	ANG3030	×1	Not used
10	PCB spacer	AEC1126	×4	Not used
12	Wire saddle	AEC1745	×11	Ten of the 11 wire saddles are to be used with this unit. Attach them to the places where T indications are engraved.
13	Wire saddle	AEC1751	×9	Not used
15	PCB support	AEC1938	×2	Attach them to the places where C indications are engraved.
16	PCB support	AEC1958	×2	Not used
17	Harness lifter 28	AEC1982	×4	Attach them to the places where U indications are engraved.
18	Ferrite clamp	AEC1986	×10	Eight of the 10 ferrite clamps are to be used with this unit.
22	DC sheet A	AMR3612	×1	Not used
23	Address sheet E	AMR3621	×1	Not used
24	Address sheet D	AMR3631	×1	Not used
25	Gasket E	ANK1874	×2	Not used
36	Screw	TBZ40P080FTB	×13	Twelve screws have been already secured to the Assy. The remaining one screw packed in a plastic bag is not used with this unit.

PDP SERVICE ASSY 507 (AWU1212) PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
NSP 1	Panel Chassis (507) Assy	AWU1148	26	Gasket AV8	ANK1881
2	Front Chassis VL (50)	AMA1014	27	Rivet A	BEC1158
3	Front Chassis VR (507)	AMA1022	NSP 28	Front Case Assy (507SV)	AMB2977
4	Sub Frame L Assy 507	ANA1945	29	Rear Case (507)	ANE1656
5	Sub Frame R Assy 507	ANA1946	30	Caution Label	AAX3031
6	Front Chassis H Assy (507)	ANA2031	NSP 31	Drive Voltage Label	ARW1097
7	Conductive Plate X	ANG2905	32	Screw (3 x 40P)	ABA1332
8	Clamp Base (*)	ANG3030	33	Screw	ABA1351
9	Cushion	AEB1424	34	Screw	ABA1364
NSP 10	PCB Spacer (*)	AEC1126	35	Screw	AMZ30P060FTB
11	PCB Spacer	AEC1570	36	Screw (*)	TBZ40P080FTB
12	Wire Saddle (*)	AEC1745	37	Polyethylene Bag	AHG1337
13	Wire Saddle (*)	AEC1751	38	Polyethylene Bag S	AHG1338
14	Screw Rivet	AEC1877	39	Polyethylene Bag	AHG1340
15	PCB Support (*)	AEC1938	40	Pad (507 T-L)	AHA2538
16	PCB Support (*)	AEC1958	41	Pad (507 T-R)	AHA2539
17	Harness Lifter 28 (*)	AEC1982	42	Pad (507 B-L)	AHA2540
18	Ferrite Clamp (*)	AEC1986	43	Pad (507 B-R)	AHA2541
19	Re-use PCB Spacer	AEC2087	44	Under Carton (507)	AHD3473
20	Address Sheet A	AMR3628	45	Upper Carton (507SV)	AHD3550
21	Address Sheet F	AMR3646	46	Protect Sheet	AHG1331
22	DC Sheet A (*)	AMR3612	47	Screw	ABZ30P080FTC
23	Address Sheet E (*)	AMR3621	48	Screw	APZ30P080FTB
24	Address Sheet D (*)	AMR3631			
25	Gasket E (*)	ANK1874			

1 2 3 4

2.9 TABLE TOP STAND



D

TABLE TOP STAND PARTS LIST

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
NSP 1	Stand Pipe Assy	AXY1141
NSP 2	Base Cover Assy	AXY1142
3	Bolt (HEX)	ABA1358
4	Bolt (HEX)	ABA1359
5	Screw	ABA1360

3. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

●The Δ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.

●When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω \rightarrow 56 x 10¹ \rightarrow 561 RD1/4PU 561J
47k Ω \rightarrow 47 x 10³ \rightarrow 473 RD1/4PU 473J
0.5 Ω \rightarrow R50 RN2H R50K
1 Ω \rightarrow 1R0 RS1P 1R0K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω \rightarrow 562 x 10¹ \rightarrow 5621 RN1/4PC 5621F

Mark No. Description Part No. LIST OF ASSEMBLIES

NSP	1..PANEL CHASSIS (507) ASSY	AWU1148
NSP	2..50 ADDRESS ASSY	AWV2303
NSP	3..50 ADDRESS L ASSY	AWW1141
NSP	3..50 ADDRESS S ASSY	AWW1142
NSP	2..50 SCAN ASSY	AWV2304
NSP	3..50 SCAN A ASSY	AWW1147
NSP	3..50 SCAN B ASSY	AWW1148
NSP	1..50 X DRIVE ASSY	AWV2305
	2..50 X MAIN DRIVE ASSY	AWW1143
	2..50 X SUB DRIVE ASSY	AWW1144
NSP	1..50 Y DRIVE ASSY	AWV2306
	2..50 Y MAIN DRIVE ASSY	AWW1145
	2..50 Y SUB DRIVE ASSY	AWW1146
NSP	1..50 DIGITAL ASSY	AWV2302
	2..50 DIGITAL ASSY	AWW1139
	2..SENSOR ASSY	AWW1140
	1..MAIN ASSY (US BB)	AWV2312
NSP	1..I/O ASSY	AWV2313
	2..POD ASSY	AWW1154
	2..TANSHI ASSY	AWW1156
	2..SIDE ASSY	AWW1157
NSP	1..50 AUDIO FUKUGO ASSY	AWV2346
	2..AUDIO ASSY	AWW1131
	2..SP TERMINAL ASSY	AWW1132
	2..SIDE KEY ASSY	AWW1133
	2..50 LED ASSY	AWW1135
	2..LED IR ASSY	AWW1136
Δ	1..POWER SUPPLY UNIT	AXY1153

Mark No. Description Part No. 50 DIGITAL ASSY

[DIGITAL IF BLOCK]

MISCELLANEOUS

F3001		CCG1162
CN3001	50P CONNECTOR	AKM1353
CN3002	20P FFC CONNECTOR	AKM1235

RESISTORS

R3007, 3010-3016	RAB4C470J
R3020-3022	RAB4C103J
Other Resistors	RS1/16SS###J

Mark No. Description Part No.

[MODULE UCOM BLOCK] SEMICONDUCTORS

IC3151	AGC1011
IC3152, 3153	SN74AHC541PW
IC3155	SN74AHC08PW
IC3156	BR24L04FJ-W
IC3157	M62334FP
IC3159	TC7W126FU
IC3160, 3161	TC74VHC123AFTS1
Q3151	2SJ461A
D3151, 3152, 3154, 3155	DAN202U
D3158, 3159, 3161-3163	1SS355

MISCELLANEOUS

X3151	CSS1616
CN3151 CONNECTOR	AKM1276
CN3152 CONNECTOR	CKS4828

RESISTORS

R3155, 3160, 3170, 3176	RAB4C101J
R3174	RAB4C103J
Other Resistors	RS1/16SS###J

CAPACITORS

C3151	CEHVKW470M6R3
C3152, 3153, 3155-3158	CKSSYB104K10
C3159, 3171, 3172, 3182	CKSRYB105K6R3
C3162, 3163, 3165, 3166	CKSSYB104K10
C3164	CCSSCH101J50
C3167	CKSSYB103K16
C3168, 3170, 3181	CKSSYB104K10

[PANEL FLASH BLOCK] SEMICONDUCTORS

IC3301	AGC1009
IC3302, 3305	PST3628UR
IC3303	SN74AHC08PW
IC3304	PST3610UR
Q3301	RN1901
Q3302	HN1C01FU

MISCELLANEOUS

X3302	ASS1188
CN3301 CONNECTOR	CKS4835

RESISTORS

R3307, 3308	RAB4C101J
-------------	-----------

Mark No. Description**Part No.**

Other Resistors

RS1/16SS###J

A CAPACITORSC3301-3303, 3306, 3308
C3304, 3307, 3309
C3305, 3310
C3311
C3315, 3316CKSSYB104K10
CKSSYB472K16
CKSSYB102K50
CCSRCH470J50
CKSSYB104K10

C3317

CCSRCH471J50

[SQ ASIC BLOCK]**SEMICONDUCTORS**

IC3401

PEG239A

MISCELLANEOUSL3401-3403
F3401, 3402QTL1013
CCG1162**RESISTORS**R3402, 3412
R3405-3407, 3409, 3410
R3416
R3425
Other ResistorsRAB4C101J
RAB4C220J
RAB4C220J
RS1/16SS5601F
RS1/16SS###J**C CAPACITORS**C3401, 3402, 3419, 3425
C3403-3413, 3417, 3418
C3420-3424, 3426-3432
C3445-3448CEHVKW101M6R3
CKSSYB104K10
CKSSYB104K10
CKSSYB104K10**[ADDRESS CN BLOCK]****SEMICONDUCTORS**Q3501, 3502
D3501, 3502RN1901
DAN202U**D MISCELLANEOUS**CN3501-3504, 3506 40P CONNECTOR
CN3505 18P CONNECTORAKM1348
VKN1310**RESISTORS**R3519, 3520
R3521, 3522, 3525
R3524
Other ResistorsRAB4C472J
RAB4C101J
RAB4C222J
RS1/16SS###J**[DIGITAL DD CON BLOCK]****SEMICONDUCTORS**

IC3601

BA80BC0WFP

MISCELLANEOUS

U3601 DD CON UNIT

AXY1137

RESISTORSR3611
Other ResistorsRAB4C101J
RS1/16SS###J**CAPACITORS**C3609
C3611
C3612
C3613CKSSYB104K10
CKSQYB105K16
ACH1394
CKSSYB103K16

F

Mark No. Description**Part No.****SENSOR ASSY****SEMICONDUCTORS**IC3651
IC3652
Q3651MM1522XU
BR24L02FJ-W
HN1B04FU**MISCELLANEOUS**

CN3651 CONNECTOR

AKM1276

RESISTORS

Other Resistors

RS1/16SS###J

CAPACITORSC3651, 3653
C3652, 3654
C3656, 3657CKSRYB105K6R3
CKSSYB103K16
CKSSYB104K10**50 X MAIN DRIVE ASSY****[50X LOGIC BLOCK]****SEMICONDUCTORS**IC1001
IC1002
D1001-1004TC74ACT541FT
TC74VHC00FTS1
1SS355**MISCELLANEOUS**K1004, 1007 TEST PIN
CN1001 18P CONNECTORAKX1061
VKN1310**RESISTORS**R1001, 1006
R1004
VR1001
Other ResistorsRAB4C470J
RAB4C472J
CCP1390
RS1/16S###J**CAPACITORS**C1001
C1002, 1003
C1004
C1006CEHAT470M16
CKSRYB104K16
CCSRCH331J50
CCSRCH680J50**[50X RESONANCE BLCOK]****SEMICONDUCTORS**IC1101, 1105
IC1102
IC1104
IC1107
Q1101TND307TD
PS9117P
AXF1163
PS2701A-1(L)
2SC2412KQ1102, 1103
Q1104, 1105
D1101, 1103
D1102
D1104QSZ2
2SC4081
UDZS5R6(B)
CRH01
UDZS15(B)**MISCELLANEOUS**L1101
L1106
F1101
1101
1102ATH1217
ATH1216
CTF1449
ANH1653
AEH1092

1103

BMZ30P080FTC

5	6	7	8
Mark No. Description	Part No.	Mark No. Description	Part No.
<u>RESISTORS</u>		<u>CAPACITORS</u>	
R1107, 1108	RS3LMF100J	C1201, 1212	ACG1126
R1109, 1110	RS1/10S4702F	C1202, 1209, 1232, 1236	CKSRYB104K16
R1113	RS1/16S1002F	C1203, 1208, 1215, 1229	CKSRYF104Z50
R1114	RS1/16S3302F	C1205, 1206, 1217, 1218	ACG1139
R1115	ACN1259	C1207, 1214, 1220, 1226	CEHAT470M25
R1119	ACN1258	C1210, 1211, 1216, 1241	CKSYB105K25
R1121	RS1/16S4701F	C1213	CCSRCH221J50
Other Resistors	RS1/16S####J	C1222, 1223	ACH1423
		C1224, 1225	ACE1178
		C1228	CEHAT2R2M2E
<u>CAPACITORS</u>		C1230	ACH1449
C1101, 1114	CEHAT470M25	C1231, 1237	CEHAT101M10
C1102, 1115	CKSRYF104Z50	C1233	CKSRYB473K16
C1103	CKSRYB104K16	C1234	CEHAT470M16
C1104, 1117	CKSYB105K25	C1235	CKSRYB105K6R3
C1107, 1116	ACG1126		
C1113	ACH1450	C1244	CKSRYB104K25
C1121–1124	ACE1178		
[50X SUS BLOCK] <u>SEMICONDUCTORS</u>		[DRIVE HEAT SINK M] <u>MISCELLANEOUS</u>	
IC1201, 1204, 1206, 1208	TND307TD	3001, 3001	ANH1656
IC1202, 1205	PS9117P	3001	ANH1656
IC1209	MM1565AF	3101, 3101	ANG2679
Q1201, 1208	2SC2412K	3101	ANG2679
Q1202, 1204, 1205, 1207	H5N2512LS		
Q1209, 1212–1214	QSZ2	[50X D-D CON BLOCK] <u>SEMICONDUCTORS</u>	
Q1210, 1211	FKP280AS	IC1301	PS2701A-1(L)
Q1215, 1221	FKP300AS	IC1302	TA76431FR
Q1216	DTC143EK	Q1301	2SC2412K
Q1217	DTC123TKA	Q1303, 1306, 1307	HN1C01FU
Q1220	R5009ANJ	Q1304, 1401	2SD1898
D1201, 1205	UDZS5R6(B)	Q1305	2SA1037K
D1202, 1203, 1206, 1211	CRH01	Q1402	2SC4081
D1204	D1FL40	D1307	CRF03
D1208	1SS302	D1308, 1403	UDZS5R1(B)
D1209	UDZS16(B)	D1309, 1311, 1401, 1405	CRH01
D1210	1SS355	D1312, 1402	1SS301
D1212	CRH01	D1313, 1318, 1404, 1406	1SS355
D1213	UDZS8R2(B)	D1315, 1316	UDZS4R7(B)
<u>MISCELLANEOUS</u>		<u>MISCELLANEOUS</u>	
L1201, 1203, 1204	BTH1134	T1302	ATK1160
L1202	ATH1186	T1401	ATK1159
F1227	CTF1449		
K1202 TEST PIN	AKX1061	<u>RESISTORS</u>	
KN1201–1204, 1210–1217	ANK1841	R1312–1314, 1317	RS1/10S224J
CN1201 14P CONNECTOR	14PL-FJ	R1328	RAB4C472J
CN1204 8P TOP POST	B8B-EH	VR1301	CCP1392
1202 SCREW	PMB30P080FNI	Other Resistors	RS1/16S####J
<u>RESISTORS</u>		<u>CAPACITORS</u>	
R1208, 1210, 1213, 1215	RS1/10S100J	C1301, 1302, 1405, 1406	CKSRYB104K16
R1211	ACN1254	C1308, 1401, 1407	CEHAT101M25
R1219, 1228, 1230, 1231	RS1/10S0R0J	C1310, 1313, 1402	CKSYB105K25
R1220, 1224, 1233, 1256	RS1/10S2R2J	C1311	ACH1451
R1237	RS1/10S0R0J	C1312, 1403	CKSRYB103K50
R1239	ACN1258	C1314	CEHAT100M50
R1245	ACN1257	C1404	ACG1105
R1247, 1248	RS3LMF470J		
Other Resistors	RS1/16S####J		

Mark No. **Description** **Part No.**

Mark No. **Description** **Part No.**

50 X SUB DRIVE ASSY

SEMICONDUCTORS

A Q1501 FKP280AS
 Q1502 FKP300AS
 Q1504, 1505 H5N2512LS
 Q1507 QSZ2
 D1501 CRH01

IC2107 AXF1163
 Q2101 2SC2412K

 Q2103, 2106 QSZ2
 Q2110, 2111 2SC4081
 D2101, 2112 UDZS5R6(B)
 D2107 CRH01
 D2113 UDZS15(B)

MISCELLANEOUS

K1501 TEST PIN AKX1061
 KN1501–1505 GROUND PLATE ANK1841
 CN1501 14P CONNECTOR 14R-FJ
 1502 SCREW PMB30P080FNI

MISCELLANEOUS

L2101 ATH1217
 L2103 ATH1216
 F2101 CTF1449
 2101 ANH1653
 2102 AEH1092

RESISTORS

B R1502, 1503 RS1/10S2R2J
 R1507, 1508 RS1/10S100J
 Other Resistors RS1/16S###J

2103 SCREW BMZ30P080FTC

CAPACITORS

C1501 ACE1178
 C1503, 1504 ACG1139
 C1505 ACH1423
 C1506 CKSYB105K25

RESISTORS

R2109 ACN1259
 R2112, 2133 ACN1255
 R2113, 2114 RS1/10S4702F
 R2118 ACN1241
 R2120 RS1/16S1002F

[DRIVE HEAT SINK M]

MISCELLANEOUS

C 3001, 3001 ANH1656
 3101, 3101 ANG2679

R2121 RS1/16S3302F
 R2126 RS1/16S4701F
 R2129 ACN1258
 Other Resistors RS1/16S###J

RESISTORS

Other Resistors RS1/16S###J

CAPACITORS

C2101, 2114 CEHAT470M25
 C2102, 2115 CKSRYF104Z50
 C2103 CKSRYB104K16
 C2104, 2116 CKSYB105K25
 C2107 ACG1139

50 Y MAIN DRIVE ASSY

[50Y LOGIC BLOCK]

SEMICONDUCTORS

D IC2001, 2003 TC74ACT541FT
 IC2002 TC74ACT540FT
 D2001, 2006, 2007, 2011 1SS355
 D2003–2005 1SS301
 D2012 1SS355

C2108–2111 ACE1178
 C2113 ACH1450
 C2117 ACG1138

MISCELLANEOUS

K2011, 2014 TEST PIN AKX1061
 CN2001 40P CONNECTOR AKM1348

[50Y SUS BLOCK]

SEMICONDUCTORS

IC2201, 2203, 2205, 2208 TND307TD
 IC2204, 2209 PS9117P
 IC2210 TND307TD
 IC2212 TND301S
 IC2213 MM1565AF

RESISTORS

E R2001, 2003, 2008, 2020 RAB4C470J
 R2002, 2006 RAB4C101J
 R2004, 2005, 2013, 2025 RAB4C472J
 VR2001, 2002 CCP1390
 Other Resistors RS1/16S###J

Q2201 2SA2142
 Q2202, 2214 2SC4081
 Q2203 R5009ANJ
 Q2204, 2206, 2207, 2209 H5N2512LS
 Q2210, 2216 FKP280AS

CAPACITORS

C2001 CEHAT470M16
 C2002–2004 CKSRYB104K16
 C2005, 2006 CCSRCH331J50
 C2007 CCSRCH680J50

Q2211, 2213, 2217, 2219 H5N2512LS
 Q2215, 2221, 2222, 2241 QSZ2
 Q2220, 2223 FKP300AS
 Q2236 2SK3050
 Q2238 R6008ANJ

[50Y RESONANCE BLCOK]

SEMICONDUCTORS

F IC2101, 2104 TND307TD
 IC2102 PS9117P
 IC2106 PS2701A-1(L)

Q2261 DTC143EK
 Q2262 DTC123TKA
 D2201, 2202, 2204, 2209 CRH01
 D2203, 2225 1SS355
 D2205, 2206 1SS302

 D2207 CRF03
 D2208, 2212 UDZS5R6(B)
 D2210, 2213, 2216 CRH01

Mark No.	Description	Part No.	Mark No.	Description	Part No.
D2211 D2219		D1FL40 1SS301			
D2220–2222, 2231, 2301 D2223, 2224 D2241		CRH01 UDZS16(B) UDZS8R2(B)		[50Y VH D-D CON BLOCK] <u>SEMICONDUCTORS</u>	
MISCELLANEOUS					
L2201, 2203, 2204 L2202 F2201–2214 F2221 K2202–2204 TEST PIN		BTH1134 ATH1186 ATX1062 CTF1449 AKX1061		IC2401 IC2402 IC2403 IC2405, 2412 Q2401	BA10358F MIP2E3DMU PS2701A-1(L) TA76431FR 2SC3425
KN2201–2204, 2210–2217 CN2202 14P CONNECTOR CN2204 CONNECTOR 2202 SCREW		ANK1841 14PL-FJ B9B-EH PMB30P080FNI		Q2402 Q2403 Q2404 D2402, 2407 D2403	2SD2568 2SC4081 HN1C01FU CRF03 UDZS33(B)
RESISTORS				D2404 D2406, 2410 D2408, 2409 D2411	1SS355 UDZS4R7(B) CRH01 UDZS12(B)
R2201 R2202, 2204 R2217, 2219, 2222, 2224 R2225 R2226, 2235, 2243, 2246		RS3LMF821J RS1/10S151J RS1/10S100J ACN1254 RS1/10S2R2J		MISCELLANEOUS	
R2228, 2230, 2236, 2238 R2234, 2255, 2372 R2260 R2264 R2280		RS1/10S100J RS1/10S0R0J ACN1257 ACN1258 RS3LMF471J		L2401 T2401	BTH1136 ATK1158
R2281–2284 R2341, 2343 Other Resistors		ACN1241 RS2LMF5R6J RS1/16S###J		RESISTORS	
CAPACITORS				R2401, 2402 R2403, 2404, 2406 R2407, 2410 R2412 R2413	RS1/10S104J RS1/10S2203F RS1/16S5601F RS1/16S1003F RS1/16S1802F
C2201, 2209, 2215, 2222 C2202, 2208, 2210, 2216 C2203 C2204 C2205, 2256		CEHAT470M25 CKSRYF104Z50 ACH1427 CCSRCH102J50 ACG1126		R2414, 2415 R2416 R2420, 2421, 2424 R2426 VR2401	RS1/16S4702F RS1/10S0R0J RS1/10S473J RAB4C472J CCP1392
C2207, 2217, 2248, 2253 C2211, 2212, 2225, 2226 C2218, 2219, 2224, 2261 C2221 C2223, 2232		CKSRYB104K16 ACG1139 CKSYB105K25 CCSRCH221J50 CKSRYF104Z50		VR2402 Other Resistors	CCP1390 RS1/16S###J
C2227, 2231 C2234, 2240 C2237, 2241 C2238, 2239 C2244		CEHAT470M25 CEHAT2R2M2E ACH1423 ACE1178 ACH1449		CAPACITORS	
C2246 C2247, 2252 C2249 C2250 C2251		ACH1426 CEHAT101M10 CKSRYB473K16 CEHAT470M16 CKSRYB105K6R3		C2401 C2402 C2403, 2404 C2405, 2407, 2412 C2408	ACE1177 ACH1425 CKSRYB104K25 CKSRYB104K16 CEHAT101M16
C2271, 2276		CKSRYB104K25		C2409 C2410 C2411 C2413 C2421	CEHAT470M25 CEHAT101M25 ACH1450 CEHAT221M16 ACH1451
[DRIVE HEAT SINK M] <u>MISCELLANEOUS</u>				[50Y D-D CON BLOCK] <u>SEMICONDUCTORS</u>	
3001, 3001 3001 3101, 3101 3101		ANH1656 ANH1656 ANG2679 ANG2679		IC2501, 2502, 2504 IC2503 IC2506, 2514 Q2501, 2506, 2511 Q2502, 2507	PS2701A-1(L) BA10358F TA76431FR 2SD1898 2SA1576A
				Q2503, 2515 Q2504, 2509, 2513 Q2505 Q2508 Q2510	DTC143EUA HN1C01FU 2SC2713 2SA2005 2SA1163
				Q2512, 2514	2SC4081

Mark No. Description**Part No.****Mark No. Description****Part No.**

Q2520
D2501, 2503, 2510, 2516
D2502, 2512, 2518
D2504, 2508

2SC2412K
CRH01
1SS301
UDZS4R7(B)

D2505, 2507, 2513, 2517
D2509
D2511
D2515, 2521
D2519, 2520, 2523

1SS355
D1FL40
1SS302
UDZS5R1(B)
1SS355

D2522
D2524

UDZS5R6(B)
UDZS15(B)

MISCELLANEOUS

T2501
T2502
T2503

ATK1156
ATK1161
ATK1159

RESISTORS

R2510, 2514, 2539, 2543
R2513
R2523
R2524, 2531
R2530, 2532

RS1/16S4701F
RAB4C472J
RS1/16S4702F
RS1/10S224J
RS1/16S1501F

R2533
R2536
R2544
R2550
R2554

RS3LMF151J
RS1/16S1002F
RS1/16S4701F
RS1/16S5601F
RS1/16S6801F

VR2501
Other Resistors

CCP1390
RS1/16S###J

CAPACITORS

C2501, 2502, 2514
C2503, 2515
C2504
C2505, 2506, 2512
C2507

CEHAT101M25
ACG1105
CKSRYB102K50
CKSRYB104K16
CEHAT221M6R3

C2508
C2509, 2510, 2518
C2511, 2516
C2513
C2517

CEHAT221M25
CKSRYB103K50
CKSRYB105K6R3
CKSYB105K25
CKSRYF104Z50

C2519–2521, 2525

CKSRYB104K16

**[50Y SCAN BLOCK]
SEMICONDUCTORS**

IC2601–2603, 2607
IC2604–2606
IC2610, 2611

TLP116
PS9117P
TC74AC540FT

MISCELLANEOUS

L2601, 2611
CN2601 15P CONNECTOR

BTH1134
AKM1200

RESISTORS

R2624
R2631
Other Resistors

RAB4C220J
RS1/10S0R0J
RS1/16S###J

CAPACITORS

C2601, 2623
C2602, 2603, 2611–2617
C2621, 2622

CEHAT101M10
CKSRYB104K16
ACH1450

**50 Y SUB DRIVE ASSY
SEMICONDUCTORS**

Q2701
Q2711
Q2721, 2723, 2725, 2726
Q2731
D2701

FKP280AS
FKP300AS
H5N2512LS
QSZ2
CRH01

MISCELLANEOUS

F2701–2706
K2701 TEST PIN
KN2701, 2702, 2711–2713
CN2701 14P CONNECTOR
2702 SCREW

ATX1062
AKX1061
ANK1841
14R-FJ
PMB30P080FNI

RESISTORS

R2702, 2712
R2722, 2724, 2726, 2727
R2732
Other Resistors

RS1/10S2R2J
RS1/10S100J
RS1/10S0R0J
RS1/16S###J

CAPACITORS

C2701
C2702
C2703
C2711, 2721
C2731

ACE1178
ACH1423
ACG1088
ACG1139
CKSYB105K25

**[DRIVE HEAT SINK M]
MISCELLANEOUS**

3001, 3001
3101, 3101

ANH1656
ANG2679

RESISTORS

All Resistors

RS1/16S###J

**MAIN ASSY
[BOARD IF BLOCK(U)]
SEMICONDUCTORS**

IC4001–4005
Q4001, 4002
Q4003
Q4004

TC74VCX541FT
DTC124EUA
RN2902
DTA124EUA

MISCELLANEOUS

L4001–4005
F4001–4003, 4011–4016
F4005, 4006
CN4001, 4004 50P CONNECTOR
CN4005 40P CONNECTOR

BTX1042
CTF1557
VTF1084
AKM1349
AKM1348

CN4006 6P PLUG
CN4009 CONNECTOR
CN4013 12P FFC CONNECTOR
CN4018 3P CONNECTOR

KM200NA6
AKM1274
AKM1233
AKM1213

RESISTORS

R4001
R4002, 4018
R4012, 4017, 4048
R4016
R4021–4024

RAB4CQ470J
RS1/16S102J
RS1/16S75R0F
RS1/16S0R0J
BCN1067

5		6		7		8	
Mark No.	Description	Part No.		Mark No.	Description	Part No.	
R4073, 4074		RS1/10S0R0J		C4125		CKSRYB104K16	
Other Resistors		RS1/16SS###J		C4127		CKSRYB105K10	
CAPACITORS				C4129		CCSSCH390J50	
C4001–4003, 4007, 4027		CKSSYB104K10		C4132, 4133, 4136, 4137		BCG1059	A
C4004		CCSSCH101J50		C4138, 4140		CCSSCH221J50	
C4006, 4009, 4010, 4026		CCSSCH221J50					
C4011, 4012, 4017, 4018		DCH1201		C4139		CCSRCH101J50	
C4013, 4020, 4021, 4023		CKSSYB102K50		C4142		BCG1059	
				C4147		CCSRCH102J50	
C4014		CKSSYF104Z16		C4165		DCH1201	
C4016		ACG1128		C4172		CKSSYB104K10	
C4019, 4022, 4025, 4030		CKSRYB102K50		[ATUNER BLOCK(U)]			
C4024		CKSSYB102K50		SEMICONDUCTORS			
C4033, 4036, 4039		CKSRYB102K50		IC4401		TC74HC4066AFT	
				IC4402		AN5832SA	B
C4043		CKSSYB104K10		Q4401, 4416		DTC124EUA	
C4051–4053		CCSSCH470J50		Q4402, 4405, 4409, 4417		2SA1586	
				Q4403		DTA124EUA	
[POWER 0 BLOCK(U)]				Q4404, 4406–4408, 4410		2SC4116	
SEMICONDUCTORS				Q4411		2SC4116	
IC4101, 4105		S-1132B18-U5		Q4413–4415		HN1B04FU	
IC4102, 4103		LTC3412EFE		Q4418		2SA1586	
IC4104, 4111		NJM2846DL3-05		D4401		1SS355	
IC4106		NJM2886DL3-15					
IC4107		NJM2846DL3-33		D4402		UDZS30(B)	
				MISCELLANEOUS			
IC4108		NJM2846DL3-18		L4401–4405		BTH1121	C
IC4110		PQ090DNA1ZPH		F4401–4404		VTF1080	
Q4101, 4110		RN1902		K4401, 4402 TEST PIN		AKX1061	
Q4104		DTC124EUA		⚠ U4401 TV TUNER UNIT		AXF1169	
Q4105, 4106		UPA1917TE		⚠ U4402 TV TUNER PACK		AXF1171	
				RESISTORS			
Q4107, 4108, 4112, 4113		2SC4116		R4407, 4429		RS1/16SS1002F	
Q4109		2SD2114K		Other Resistors		RS1/16SS###J	
D4101–4110		1SS355					
D4111, 4114, 4115		1SS357		CAPACITORS			
MISCELLANEOUS				C4401, 4406		CKSRYF104Z50	D
L4101		BTX1042		C4403, 4410		CCSRCH821J50	
L4102, 4106		BTX1039		C4404, 4409		CKSQYB105K16	
L4108, 4109		ATH1194		C4405		CKSRYB224K16	
RESISTORS				C4408		CCSRCH331J50	
R4107, 4110, 4134–4136		RS1/10S0R0J		C4411, 4412		CKSRYB334K10	
R4119, 4131, 4146		RS1/16SS3003D		C4413		CKSSYB102K50	
R4120		RS1/16SS2003D		C4414, 4415		CCSSCH270J50	
R4123, 4145		RS1/16SS1502F		C4416, 4417		CCSSCH221J50	
R4124		RS1/16SS6202D		C4421		CKSSYB223K16	
				C4422, 4423, 4425, 4426		CEHVKW101M6R3	
R4129		RS1/16SS3903D		C4427		CEHVKW220M16	E
R4133		RS1/16SS1503D		C4428		CKSSYB333K16	
R4139		RS1/10S0R0J		C4429–4431, 4448–4450		CKSSYB104K10	
R4148		RS1/16S102J		C4432, 4443		DCH1201	
Other Resistors		RS1/16SS###J					
CAPACITORS				C4433, 4454		CEHVKW101M6R3	
C4101, 4103, 4106, 4108		CKSRYB105K10		C4435, 4437, 4439		CKSSYF104Z16	
C4102, 4104, 4105, 4107		DCH1201		C4438, 4444, 4446, 4451		CCG1205	
C4109, 4111, 4116, 4119		DCH1201		C4447		ACG1122	
C4110, 4117		CCSSCH101J50		C4452		ACH1417	
C4112		CCG1232					
				C4453		ACH1418	
C4113, 4128		CKSSYB103K16		C4455		CKSSYB104K10	
C4114		BCG1050		C4456		CKSRYB102K50	F
C4120, 4121, 4135, 4156		CKSSYB104K10		C4457		CCSSCH120J50	
C4122		CCSSCH220J50		C4458		CCSSCH101J50	
C4124, 4126		DCH1165					

Mark No. Description

C4459

Part No.

CEHVKW221M10

Mark No.R4935, 4938
R4942**Description**

Other Resistors

Part No.RS1/16S821J
RS1/16S102J

RS1/16SS###J

A

**[AV SW BLOCK(U)]
SEMICONDUCTORS**IC4701
IC4702, 4704
IC4703
Q4701–4703, 4706, 4707
Q4708R2S11002AFT
NJM12904V
TC4052BFT
2SA1586
HN1A01FUQ4709, 4711, 4714
Q4712, 4713, 4722
Q4716
Q4719–4721
Q4723–4725UMD2N
2SC4116
HN1C01FU
2SA1586
2SC5233

B

D4701–4703, 4706
D47051SS301
1SS355**RESISTORS**R4704
R4705
R4724, 4725
R4728, 4731
R4770, 4771RS1/16S1001F
RS1/16S2700F
RS1/16S5600F
RS1/16S1800F
RS1/16S681JR4772, 4774, 4778, 4779
R4783, 4787, 4795, 4796
R4793, 4814, 4815
R4794, 4811, 4813
R4804, 4806, 4807, 4817RS1/16S102J
RS1/16S182J
RS1/16S821J
RS1/16S221J
RS1/16S182J

C

R4818
Other ResistorsRS1/16S182J
RS1/16SS###J**CAPACITORS**C4701, 4702, 4704–4716
C4717, 4720
C4718, 4721
C4719, 4724, 4725, 4728
C4723, 4726, 4729–4731CKSRYB105K10
CCSRCH181J50
CCSRCH681J50
CKSRYB105K10
CKSSYB104K10

D

C4727, 4732, 4734
C4735
C4736, 4740–4742, 4746
C4738, 4739, 4743, 4744
C4745DCH1201
ACG1122
CKSRYB104K16
CCG1205
DCH1165C4747–4749, 4751, 4752
C4750
C4753
C4754
C4757, 4760, 4761DCH1201
CCSRCH331J50
CKSSYB473K16
CKSRYB224K10
DCH1201

E

C4758, 4759
C4762, 4763
C4768
C4770CKSSYF104Z16
CCG1205
ACH1454
CKSRYB105K10**[RGB SW BLOCK(U)]
SEMICONDUCTORS**IC4901
Q4901–4904R2S11001FT
2SA1586**RESISTORS**R4914
R4932
R4934RAB4CQ102J
RS1/16S5600F
RS1/16S1800F

F

CAPACITORSC4901–4903, 4911, 4916
C4904–4906, 4909, 4910
C4907, 4908
C4912–4915, 4917–4919
C4920CKSRYB105K10
CKSSYB104K10
CCSSCH680J50
CKSSYB103K16
CKSRYB105K10C4921–4927
C4932, 4933CKSSYB103K16
DCH1201**[VDEC BLOCK(U)]
SEMICONDUCTORS**IC5101
IC5102UPD64015AGM-UEU
EDS1616AGTA-75-E**MISCELLANEOUS**L5101–5103
X5102BTX1042
ASS1191**RESISTORS**R5101–5103, 5138
R5104, 5105
R5106–5108
R5114
R5120, 5123, 5124ACN1246
BCN1067
RS1/16S0R0J
RS1/16SS6200D
RS1/16SS2000FR5127
R5133
R5137
Other ResistorsRS1/16S334J
RAB4CQ220J
RS1/10S0R0J
RS1/16SS###J**CAPACITORS**C5101–5105
C5106, 5107
C5108
C5109, 5110, 5154, 5155
C5114–5124, 5127–5129CKSSYB103K16
CCSSCH8R0D50
CKSSYB102K50
DCH1201
CKSSYB104K10C5134, 5135, 5156–5165
C5167–5170, 5172–5174
C5177–5180CKSSYB104K10
CKSSYB104K10
CKSSYB104K10**[ADC BLOCK(U)]
SEMICONDUCTORS**

IC5301

AD9985KSTZ-110

RESISTORSR5301–5303
R5304, 5306–5308
R5305
R5310, 5311
Other ResistorsBCN1067
RS1/16SS470J
RS1/16SS2701F
RS1/10S0R0J
RS1/16S###J**CAPACITORS**C5301
C5302
C5303–5305
C5307–5316, 5318, 5319CKSSYB823K10
CKSSYB822K16
CKSSYB473K16
CKSSYB104K10**[HDMI BLOCK(U)]
SEMICONDUCTORS**

IC5401

SII9023CTU

PDP-5071PU

Mark No. Description

C6110, 6112, 6114, 6121
C6111, 6113
C6123
C6124–6126

**[F/E IC BLOCK(U)]
SEMICONDUCTORS**

IC6201

MISCELLANEOUS

L6201
L6202
F6201–6205
X6201

Part No.

CKSSYB102K50
CCSSCH390J50
CKSSYB102K50
CCSSCH101J50

BCM3517KQLGB0

BTX1042
LCTAW1R8J2520
VTF1084
BSS1134

Mark No. Description**RESISTORS**

R6401
R6402, 6404
R6405–6407, 6410–6412
R6420
R6444

R6445
Other Resistors

CAPACITORS

C6401
C6402
C6403–6414
C6416–6428

Part No.

RS1/16SS1002F
RS1/16SS1101F
RS1/16SS75R0F
RAB4CQ102J
BCN1071

BCN1067
RS1/16SS####J

RESISTORS

R6211, 6213
R6237
R6238, 6240
Other Resistors

CAPACITORS

C6201, 6203, 6206, 6208
C6202, 6204, 6205
C6209–6219, 6222–6232
C6220, 6221, 6233
C6234

C6235–6237, 6240–6252
C6239
C6253, 6254, 6256

RS1/16S3010F
RAB4CQ101J
RAB4CQ330J
RS1/16SS####J

DCH1201
BCG1059
CKSSYB103K16
CCSSCH120J50
CCSSCH150J50

CKSSYB103K16
CKSSYB102K50
CKSSYB104K10

**[7038 DDR BLOCK(U)]
SEMICONDUCTORS**

IC6601
IC6602–6605

MISCELLANEOUS

L6601

CAPACITORS

C6602, 6607–6611
C6603–6606
C6612, 6620, 6633, 6642
C6613–6619, 6621, 6622
C6624, 6625, 6627–6632

C6634–6641, 6643, 6645
C6648
C6649–6651

LP2995M
EDD2516AKTA-6B

BTX1039

CKSSYB103K16
CKSSYB104K10
CKSSYB471K50
CKSSYB103K16
CKSSYB103K16

CKSSYB103K16
CEHVKW331M6R3
BCG1059

**[7038_0 BLOCK(U)]
SEMICONDUCTORS**

IC6301

MISCELLANEOUS

F6301–6310
F6312

RESISTORS

R6302, 6346
R6303–6305, 6308–6310
R6313
R6336
Other Resistors

CAPACITORS

C6301
C6302–6306
C6307–6320
C6321
C6322–6357, 6361, 6364

C6360, 6362, 6365, 6366
C6367, 6368
C6369

BCM7038KPB1G-B2

VTF1084
ATX1058

RAB4CQ472J
BCN1072
RAB4CQ102J
RAB4CQ101J
RS1/16SS####J

ACH1442
BCG1059
CKSSYB103K16
ACH1421
CKSSYB104K10

CKSSYB102K50
CKSSYB104K10
DCH1201

**[DDR REG BLOCK(U)]
RESISTORS**

R6783, 6788–6790, 6795
R6784–6787, 6791–6794
R6796, 6801, 6802, 6816
R6797–6800, 6803–6806
R6807–6809, 6811, 6839

R6810, 6812–6815
R6817–6820, 6824–6827
R6821–6823, 6828, 6829
R6830–6833, 6836–6838
R6834, 6835

R6840
Other Resistors

CAPACITORS

C6704–6711
C6801–6803

RAB4CQ101J
RAB4CQ220J
RAB4CQ101J
RAB4CQ220J
RAB4CQ510J

RAB4CQ220J
RAB4CQ220J
RAB4CQ101J
RAB4CQ220J
RAB4CQ101J

RAB4CQ220J
RS1/16SS####J

CKSSYB103K16
DCH1201

**[7038_1 BLOCK(U)]
SEMICONDUCTORS**

Q6401

MISCELLANEOUS

F6401–6412

RN1901

VTF1084

**[7038 FLASH BLOCK(U)]
SEMICONDUCTORS**

IC6901
IC6902
IC6903
Q6901
Q6902

Q6903
D6902, 6903

TC7WH02FU
AGC1008
BR24L64F-W
2SA1586
UMD2N

2SC4116
UDZS4R7(B)

Mark No. Description**Part No.****Mark No. Description****Part No.****CAPACITORS**

C7301–7303, 7305
C7304
C7306–7315, 7319, 7320
C7321–7323

CKSSYB102K50
CCSSCH680J50
CKSSYB104K10
CKSSYB102K50

R7533
R7539
R7550, 7565

RS1/16SS2402F
RS1/16SS3302F
RS1/16SS5602F

R7551, 7566
Other Resistors

RS1/16SS1202F
RS1/16SS###J

CAPACITORS

C7501, 7502
C7503
C7504, 7508, 7513
C7506, 7507
C7509

ACH1442
CKSSYB104K10
CKSSYB103K16
CKSSYB102K50
CKSSYB332K50

C7511, 7512, 7517, 7519
C7514, 7516
C7518, 7520, 7521, 7524
C7522, 7523, 7525, 7528
C7526, 7527, 7529, 7530

CKSRYB105K10
CEHVKW101M6R3
DCH1201
CKSRYB105K10
DCH1201

**[DSEL BLOCK(U)]
SEMICONDUCTORS**

IC8001
IC8002
IC8003

PD6523A
TC74LCX125FT
TC74VCX574FT

MISCELLANEOUS

L8001, 8002
F8001, 8002
⚠ F8004
X8001

BTX1042
VTF1080
ATX1058
ASS1194

8001
8002
⚠ 8003

ANH1645
AEB1417
ADE1196

RESISTORS

R8001–8003
R8004–8006
R8026, 8027
Other Resistors

ACN1251
BCN1071
RAB4CQ101J
RS1/16SS###J

CAPACITORS

C8001
C8002
C8003, 8006–8013
C8004
C8005, 8014–8025, 8027

CCSRCH221J50
CKSSYB102K50
CCSSCH221J50
CKSSYF104Z16
CKSSYB104K10

C8026, 8028–8030

DCH1201

**[IP BLOCK(U)]
SEMICONDUCTORS**

IC8101
IC8102, 8103

PE5504B
EDS6432AFTA-75-E

MISCELLANEOUS

L8101–8104
F8101

BTX1042
ATX1058

RESISTORS

R8101–8104, 8106–8110
R8105
R8111, 8116
R8112–8115, 8117
R8123

BCN1067
BCN1071
ACN1246
ACN1251
RAB4CQ103J

R8135

RAB4CQ470J

**[7038_1 BLOCK(U)]
SEMICONDUCTORS**

IC7401
IC7402
IC7403
IC7405, 7406, 7408
IC7407

NJM2370U09
NJM2871BF05
MM1563DF
NJM2846DL3-33
NJM2846DL3-18

D7402–7408

1SS355

MISCELLANEOUS

L7401, 7403
F7401

BTX1042
VTF1084

RESISTORS

R7401, 7407
Other Resistors

RS1/10S0R0J
RS1/16SS###J

CAPACITORS

C7401, 7403, 7406–7408
C7405
C7409
C7412
C7413

CKSSYB104K10
CKSRYB104K16
CKSQYB225K10
CKSSYB103K16
CKSSYB471K50

C7415
C7416
C7417–7420, 7423, 7424
C7421
C7422, 7426, 7428

CEHVKW470M16
CEHVKW220M16
DCH1201
BCG1060
CKSRYB105K10

C7427
C7429

BCG1059
DCH1201

**[7038_2 BLOCK(U)]
SEMICONDUCTORS**

IC7501
IC7502–7505
IC7506
Q7501, 7502
Q7503–7506

PQ200WNA1ZPH
R1224N102H
PST3628UR
2SA1586
CPH6311

Q7507
Q7508–7510
D7501–7504
D7505

DTC124EUA
RN1901
D1FM3
1SS355

MISCELLANEOUS

L7501, 7504
L7502, 7503
L7505, 7506

ATH1161
ATH1192
BTX1042

RESISTORS

R7502–7504
R7505, 7506
R7507, 7508
R7511, 7538
R7530

RS1/4S1R5J
RS1/4S3R3J
RS1/10S271J
RS1/16SS2202F
RS1/16SS5102F

R7531
R7532

RS1/16SS8201F
RS1/16SS9101F

Mark No. Description**Part No.****Mark No. Description****Part No.****RESISTORS**

A

R8801, 8802
R8811-8816, 8850, 8860
R8861, 8874-8876
R8880-8882, 8898
R8901RS1/10S151J
RS1/16S75R0F
RS1/16S75R0F
RS1/16S75R0F
RS1/16S4701FR8911
Other ResistorsRS1/16S102J
RS1/16SS###J**CAPACITORS**

B

C8801-8806, 8810-8812
C8809, 8902
C8815
C8818, 8819
C8820-8826, 8901CKSRYB105K10
CKSSYF104Z16
DCH1201
CKSSYB473K16
CKSSYB103K16C8832, 8833, 8843-8857
C8858CKSRYB105K10
ACH1454**POD ASSY(U)****SEMICONDUCTORS**

C

IC9001
IC9002
IC9003
Q9005
D9001, 9002, 9007, 9008BR24C21FJ
TC74VHC08FTS1
TC7WH123FU
UMD2N
UDZS5R6(B)

D9003, 9009

1SS301

MISCELLANEOUS

J

JA9001 PC CARD CONNECTOR
CN9001, 9002 40P CONNECTOR
CN9003 CONNECTOR
CN9004 15P D-SUB SOCKETAKP1305
AKM1348
CKS3826
AKP1214**RESISTORS**

D

R9008, 9016-9020
R9022-9026
Other ResistorsRAB4CQ0R0J
RAB4CQ0R0J
RS1/16SS###J**CAPACITORS**

J

C9001, 9017-9020, 9200
C9002, 9014, 9015
C9012, 9013
C9016
C9201DCH1201
CKSSYF104Z16
CCSRCH220J50
CKSRYB105K10
DCH1201**[SIDE BLOCK(UBB)]
SEMICONDUCTORS**

E

D9105, 9106

UDZS9R1(B)

MISCELLANEOUS

J

JA9101 PIN JACK (3P)
JA9102 PIN JACK (3P)
9102, 9103 SCREW TERMINALAKB1303
AKB1305
VNE1949**RESISTORS**

All Resistors

RS1/16SS###J

CAPACITORS

F

C9105, 9106
C9114CKSRYB105K10
CKSSYF104Z16**AUDIO ASSY
SEMICONDUCTORS**IC3751
IC3752
IC3753
Q3751, 3754, 3755, 3757
Q3756, 3759LA4625
PQ120DNA1ZPH
NJW1183GK1
2SA1586
2SC4116Q3758, 3760
D3751DTC124EUA
1SS355**MISCELLANEOUS**KN3751, 3752 WRAPPING TERMINAL
CN3751 CONNECTOR
3772, 3773
3774, 3775VNF1084
B3P-VH
PMB30P100FNI
VBB30P100FNI**RESISTORS**R3803
Other ResistorsRD1/2MMF2R2J
RS1/16S###J**CAPACITORS**C3752, 3753
C3754, 3805
C3755
C3757
C3758, 3760, 3796CEHAT2R2M50
CFTLA103J50
CEHAT472M25
CEHAT471M25
CKSRYB103K50C3759
C3761, 3764, 3786, 3798
C3762
C3763
C3766, 3780, 3783-3785CEHAT331M16
CEHAT101M16
CEHAT220M50
CEHATR47M50
CEHAT1R0M50C3767, 3770, 3781, 3782
C3769, 3815
C3771-3774, 3787, 3789
C3775, 3777, 3788, 3790
C3778CFTLA104J50
CKSRYB222K50
CKSRYB224K16
CEHAT100M50
CFTLA334J50C3779
C3791, 3799
C3792-3795, 3806, 3807
C3797, 3808, 3812, 3814
C3800, 3801CKSRYB822K50
CEHAT100M50
CFTLA104J50
CEHAT1R0M50
CKSRYB224K16C3811
C3813
C3816, 3817
C3818-3821
C3822-3825CFTLA223J50
CFTLA104J50
ACH1456
CCSRCH221J50
CKSRYB682K50C3826-3829
⚠ C3831, 3833, 3835, 3837
C3838, 3839CKSRYF104Z50
CCSRCH101J50
CEHAT4R7M50**SP TERMINAL ASSY****MISCELLANEOUS**⚠ F3901, 3902
JA3901 SPEAKER TERMINALATF1224
AKE1061**RESISTORS**

All Resistors

RS1/16S###J

5		6		7		8	
Mark No.	Description	Part No.	Mark No.	Description	Part No.		
CAPACITORS			CN1601	CONNECTOR	AKM1290		
	C3903, 3911, 3917, 3919	CKSRYB682K50	CN1602	40P CONNECTOR	AKM1348		
	C3904, 3912, 3918, 3920	CKSRYF104Z50					
⚠	C3905, 3907, 3913, 3915	CCSRCH221J50	RESISTORS				
⚠	C3921-3924	CCSRCH221J50	R1601-1605		RS1/16SS1000F		A
			Other Resistors		RS1/16SS###J		
SIDE KEY ASSY			CAPACITORS				
MISCELLANEOUS			C1601-1604, 1607		CKSSYF104Z16		
⚠	L9501-9504	QTL1013	C1605, 1606		CKSSYB102K50		
	S9501-9507	CSG1155	C1608, 1609		CKSRYB105K6R3		
			C1651-1656		ACG1105		
			C1657-1662		CKSSYF104Z16		
RESISTORS			C1664, 1666, 1668		CCSSCH390J50		
All Resistors		RS1/16S###J					B
CAPACITORS			[50 ADR L RESONANCE]				
C9501		CKSRYF104Z16	SEMICONDUCTORS				
C9502, 9503		CCSRCH101J50	IC1720		TND307TD		
			Q1710, 1711		QSZ2		
			Q1731, 1741, 1751, 1761		HAT3041R		
			Q1771, 1781		HAT3041R		
			Q1790		2SA1163		
			Q1791		RN1901		
			D1710, 1737, 1747, 1757		1SS302		
			D1731, 1741, 1751, 1761		UDZS15(B)		
			D1734, 1744, 1754, 1764		EP05FA20		C
			D1736, 1738, 1746, 1748		1SS355		
			D1756, 1758, 1766, 1768		1SS355		
			D1767, 1777, 1787		1SS302		
			D1771, 1781		UDZS15(B)		
			D1774, 1784		EP05FA20		
			D1776, 1778, 1786, 1788		1SS355		
50 LED ASSY			MISCELLANEOUS				
SEMICONDUCTORS			L1730, 1740, 1750, 1760		ATH1199		
	D9651	TLRV1022	L1770, 1780		ATH1199		
	D9652	SML512BC4T					
RESISTORS			RESISTORS				
All Resistors		RS1/16S###J	R1710, 1711		RS1/16SS220J		D
			Other Resistors		RS1/16S###J		
CAPACITORS			CAPACITORS				
C9651, 9652		CKSSYF103Z50	C1710		CKSYB105K25		
			C1711		ACG1098		
			C1730, 1740, 1750, 1760		ACG1137		
			C1731, 1741, 1751, 1761		ACG1136		
			C1770, 1780		ACG1137		
			C1771, 1781		ACG1136		
LED IR ASSY			50 ADDRESS S ASSY				
SEMICONDUCTORS			[50 ADR S LOGIC]				
	IC9702	SBX3050-01	SEMICONDUCTORS				
	Q9701	2SA1586	IC1801		PEE003B		
	D9701	1SS302					
	D9703	SML-521MDW	MISCELLANEOUS				
MISCELLANEOUS			L1801		QTL1013		
CN9701 CONNECTOR		AKP1303	CN1801 CONNECTOR		AKM1290		
RESISTORS			CN1802 40P CONNECTOR		AKM1348		
R9701, 9702, 9707, 9712		RS1/16S0R0J					
R9713		RS1/16S121J	RESISTORS				
R9714		RS1/16S331J	R1801-1805		RS1/16SS1000F		F
Other Resistors		RS1/16SS###J	Other Resistors		RS1/16SS###J		
CAPACITORS							
C9701		CKSSYB102K50					
C9702		CKSSYF104Z16					
C9703		ACG7046					
C9704		CKSSYF103Z50					
All Resistors		RS1/16S###J					
50 ADDRESS L ASSY							
[50 ADR L LOGIC]							
SEMICONDUCTORS							
IC1601		PEE003B					
MISCELLANEOUS							
L1601		QTL1013					

Mark No. Description**Part No.****Mark No. Description****Part No.****CAPACITORS**

A

C1801-1804, 1807
C1805, 1806
C1808, 1809
C1851-1855
C1857-1861CKSSYF104Z16
CKSSYB102K50
CKSRYB105K6R3
ACG1105
CKSSYF104Z16C1864
C1866CCSSCH390J50
CCSSCH101J50**[50 ADR S RESONANCE]
SEMICONDUCTORS**

B

IC1920
Q1910, 1911
Q1931, 1941, 1951, 1961
Q1971
Q1990TND307TD
QSZ2
HAT3041R
HAT3041R
2SA1163Q1991
D1910, 1937, 1947, 1957
D1931, 1941, 1951, 1961
D1934, 1944, 1954, 1964
D1936, 1938, 1946, 1948RN1901
1SS302
UDZS15(B)
EP05FA20
1SS355D1956, 1958, 1966, 1968
D1967, 1977
D1971
D1974
D1976, 19781SS355
1SS302
UDZS15(B)
EP05FA20
1SS355

C

MISCELLANEOUSL1930, 1940, 1950, 1960
L1970ATH1199
ATH1199**RESISTORS**R1910, 1911
Other ResistorsRS1/16SS220J
RS1/16S###J**CAPACITORS**

D

C1910
C1911
C1930, 1940, 1950, 1960
C1931, 1941, 1951, 1961
C1970CKSYB105K25
ACG1098
ACG1137
ACG1136
ACG1137

C1971

ACG1136

50 SCAN A ASSY**SEMICONDUCTORS**

E

IC2801-2806
D2801
D2802-2807, 2809, 2811
D2810SN755870KPZT-P
CRH01
1SS302
1SS355**MISCELLANEOUS**CN2801 13P CONNECTOR NONPCB
CN2802 CONNECTOR
CN2803 PH CONNECTORAKP1261
AKM1281
AKP1306**RESISTORS**R2805, 2810, 2813, 2816
R2819, 2822
Other ResistorsRAB4C221J
RAB4C221J
RS1/16S###J

F

CAPACITORSC2801, 2802, 2811, 2812
C2803, 2813, 2823, 2833
C2805-2807, 2815-2817
C2808-2810, 2818-2820
C2821, 2822, 2831, 2832ACG1088
CKSRYB105K6R3
CCSRCH220J50
CCSRCH151J50
ACG1088C2825-2827, 2835-2837
C2828-2830, 2838-2840
C2841, 2842, 2851, 2852
C2843, 2853
C2845-2847, 2855-2857CCSRCH220J50
CCSRCH151J50
ACG1088
CKSRYB105K6R3
CCSRCH220J50

C2848-2850, 2858-2860

CCSRCH151J50

50 SCAN B ASSY**SEMICONDUCTORS**IC2901-2906
IC2907
D2902-2908
D2909SN755870KPZT-P
TC7SH08FUS1
1SS302
1SS355**MISCELLANEOUS**CN2901 CONNECTOR
CN2902 PH CONNECTORAKM1281
AKP1306**RESISTORS**R2903, 2908, 2911, 2914
R2917, 2920
Other ResistorsRAB4C221J
RAB4C221J
RS1/16S###J**CAPACITORS**C2901, 2902, 2911, 2912
C2903, 2913, 2923, 2933
C2905-2907, 2915-2917
C2908-2910, 2918-2920
C2921, 2922, 2931, 2932ACG1088
CKSRYB105K6R3
CCSRCH220J50
CCSRCH151J50
ACG1088C2925-2927, 2935-2937
C2928-2930, 2938-2940
C2941, 2942, 2951, 2952
C2943, 2953, 2961
C2945-2947, 2955-2957CCSRCH220J50
CCSRCH151J50
ACG1088
CKSRYB105K6R3
CCSRCH220J50

C2948-2950, 2958-2960

CCSRCH151J50

POWER SUPPLY UNIT

POWER SUPPLY UNIT has no service part.

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

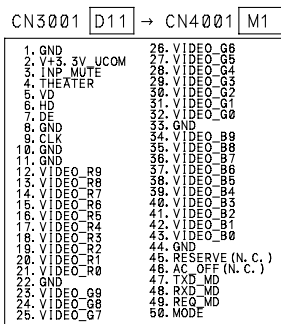
7

■

8

■

PDP-5071PU



- 45

4.2 OVERALL CONNECTION DIAGRAM (2/2)

A

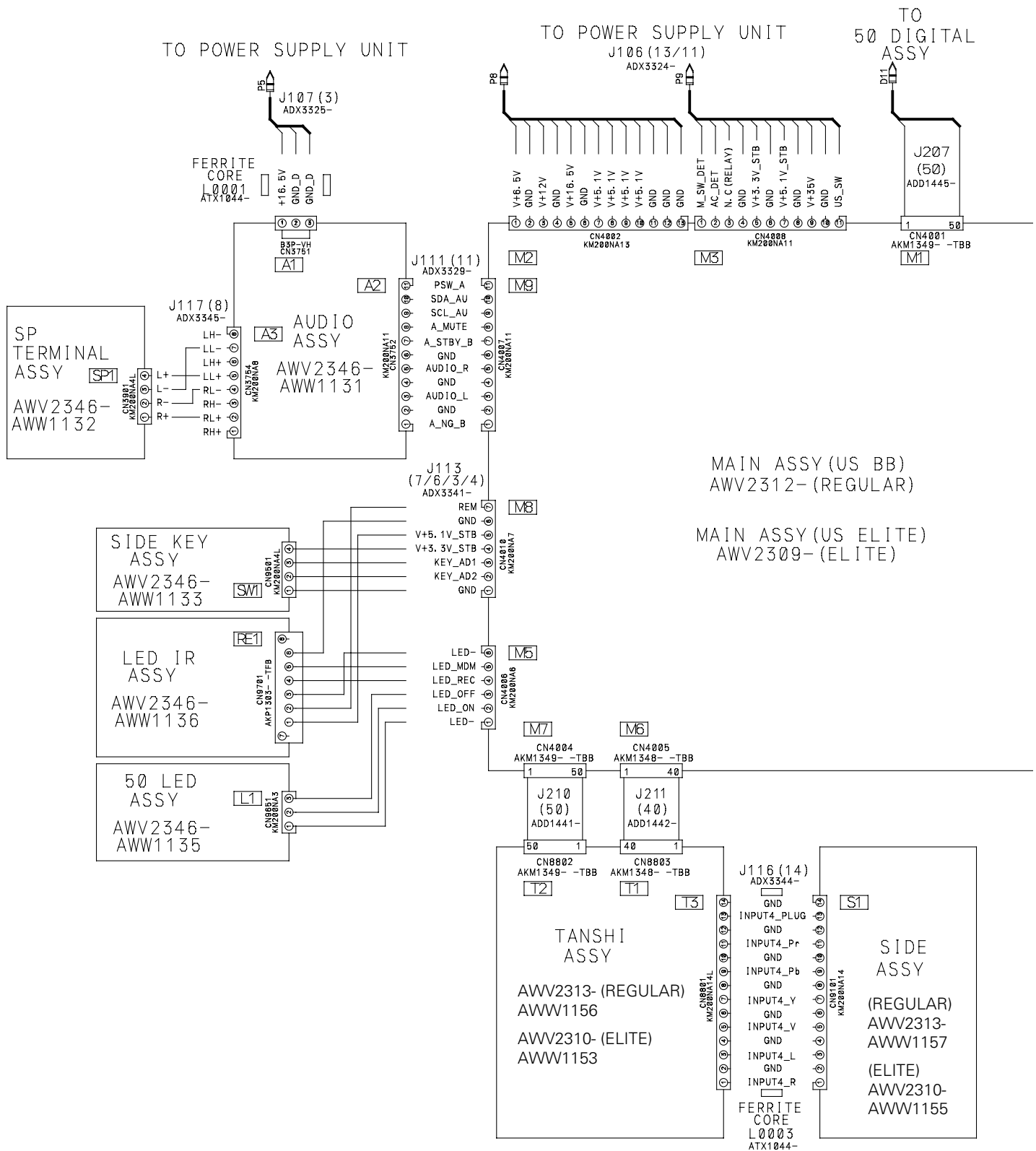
B

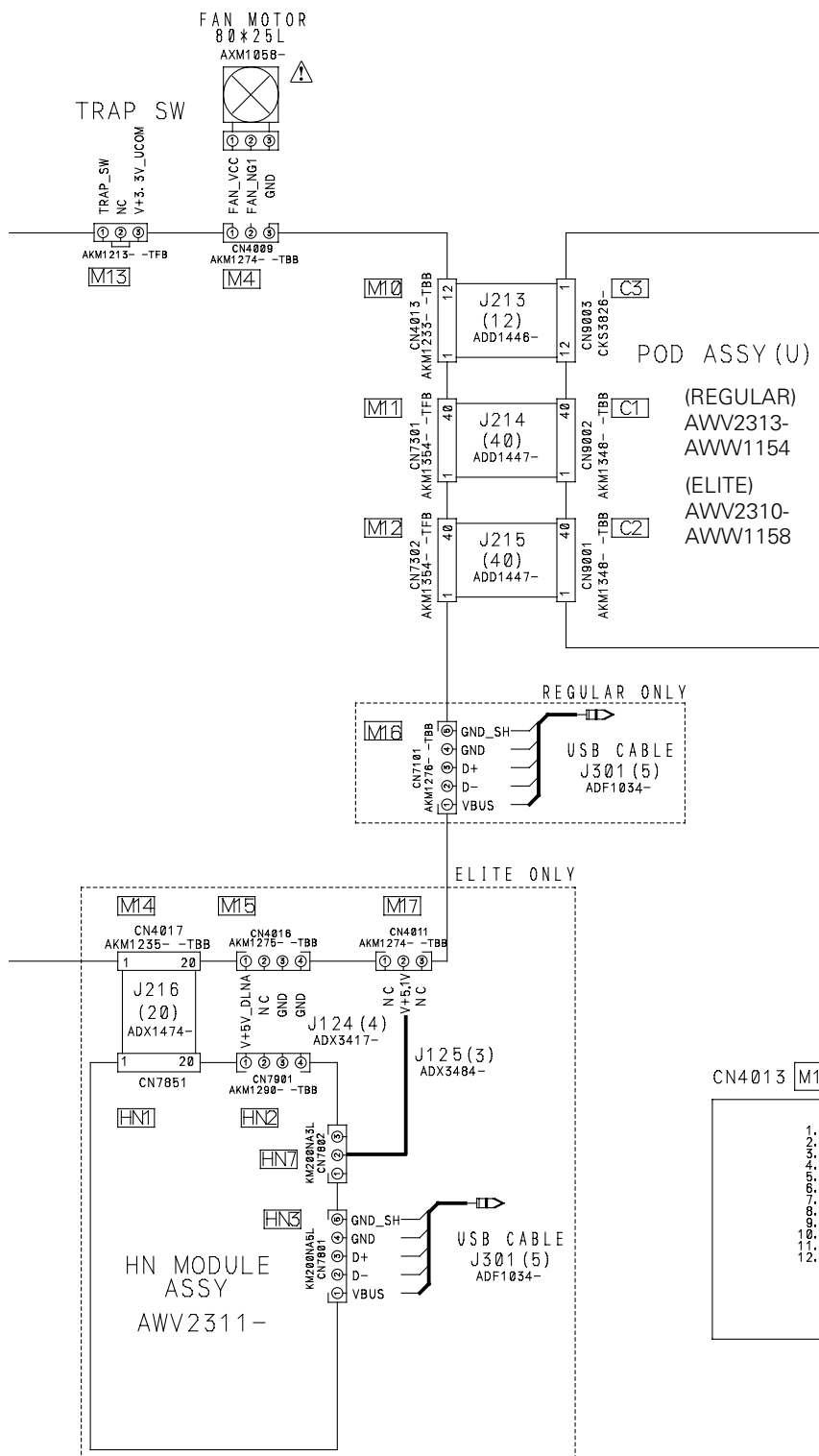
C

D

E

F





CONNECTOR PIN ASSIGN

CN4004 [M7] → CN8802 [T2]

1→50. V+3.3V_UCOM	28→25. INPUT3_R
2→49. V+8V_A	27→24. GND
3→48. V+9V_A	28→23. INPUT3_L
4→47. TEMP_2	29→22. GND
5→46. GND	30→21. INPUT5_R
6→45. GND	31→20. GND
7→44. GND	32→19. INPUT5_L
8→43. GND	33→18. GND
9→42. GND	34→17. INPUT6_R
10→41. GND	35→16. GND
11→40. GND	36→15. INPUT6_L
12→39. INPUT2_SY	37→14. GND
13→38. INPUT2_SPLUG	38→13. INPUT3_Y
14→37. INPUT2_S2	39→12. GND
15→36. INPUT2_SC	40→11. INPUT3_PB
16→35. GND	41→10. GND
17→34. INPUT2_V	42→9. INPUT3_PR
18→33. GND	43→8. GND
19→32. INPUT1_SY	44→7. INPUT2_PLUG
20→31. INPUT1_SPLUG	45→6. GND
21→30. INPUT1_S2	46→5. INPUT2_Y
22→29. INPUT1_SC	47→4. GND
23→28. GND	48→3. INPUT2_PB
24→27. INPUT1_V	49→2. GND
25→26. GND	50→1. INPUT2_PR

CN4005 [M6] → CN8803 [T1]

1→40. INPUT4_R	21→20. RXD_SR4
2→39. GND	22→19. TXD_SR4
3→38. INPUT4_L	23→18. SR_IN
4→37. GND	24→17. REM_B
5→36. INPUT4_V	25→16. GND
6→35. GND	26→15. MON_OUT_R
7→34. INPUT4_PR	27→14. GND
8→33. GND	28→13. MON_OUT_L
9→32. INPUT4_PB	29→12. GND
10→31. GND	30→11. SW_OUT
11→30. INPUT4_Y	31→10. GND
12→29. GND	32→9. INPUT2_R
13→28. INPUT4_PLUG	33→8. GND
14→27. V+5V_A	34→7. INPUT2_L
15→26. GND	35→6. GND
16→25. GND	36→5. INPUT1_R
17→24. PC_Rch	37→4. GND
18→23. GND	38→3. INPUT1_L
19→22. PC_Lch	39→2. GND
20→21. GND	40→1. MON_OUT_V

CN4013 [M10] → CN9003 [C3]

1. PC_H
2. PC_V
3. GND
4. PC_B
5. GND
6. PC_G
7. GND
8. PC_R
9. GND
10. +5V_A
11. GND
12. V+8V_A

CN7301 [M11] → CN9002 [C1]

1. GND	21. POB_DATA
2. GND	22. LOWR
3. MD3	23. GND
4. CD1A	24. POB_CLK
5. MD4	25. GND
6. MDOA3	26. M1STRTA
7. MD5	27. MA13
8. MDOA4	28. MDIA0
9. MD6	29. GND
10. MDOA5	30. MOCCLKA
11. MD7	31. GND
12. MDOA6	32. MDIA1
13. CE1A	33. WE
14. MDOA7	34. MDIA2
15. MA10	35. RDY_IRQA
16. CE2A	36. MDIA3
17. OE	37. POD_VCC
18. POD_VS1	38. POD_VCC
19. MA1T	39. POD_VCC
20. IORD	40. GND

CN7302 [M12] → CN9001 [C2]

1. GND	21. MA3
2. GND	22. DSUB_DET
3. POD_VPP	23. MA2
4. POD_VPP	24. REG
5. M1VALA	25. MA1
6. MDIA4	26. MOVALA
7. GND	27. MA8
8. M1CLKA	28. M1STRTA
9. GND	29. MD0
10. MDIA5	30. MDOA0
11. MA12	31. MD1
12. MDIA6	32. MDOA1
13. TX_O	33. MD2
14. MDTA7	34. MDOA2
15. TX_EN	35. WE_ROM
16. POD_VS2	36. CDZA
17. VY	37. GND
18. RSTA	38. V+3.3V_UCOM
19. OOB_EN	39. TEMP_2_P
20. WAITA	40. GND

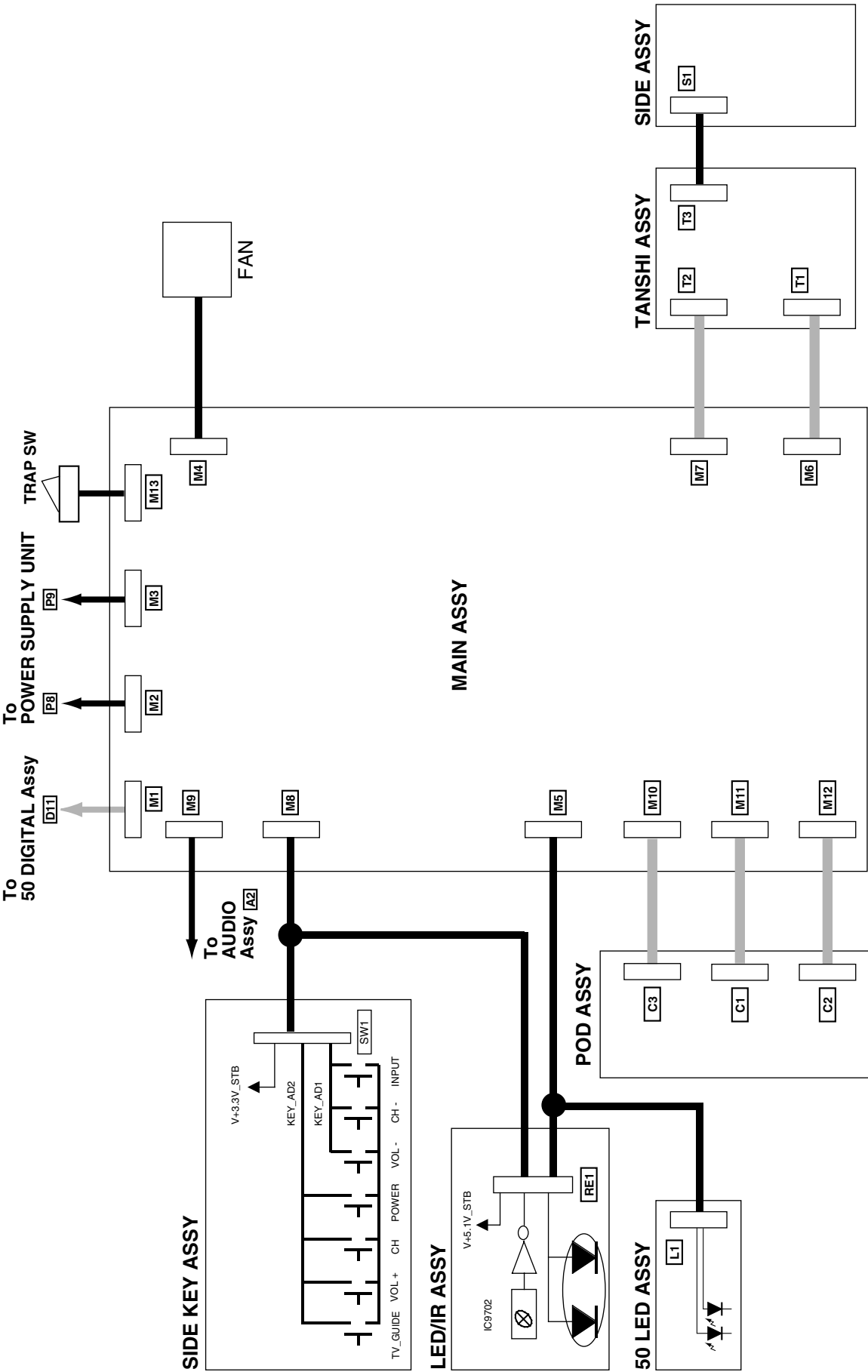
4

F



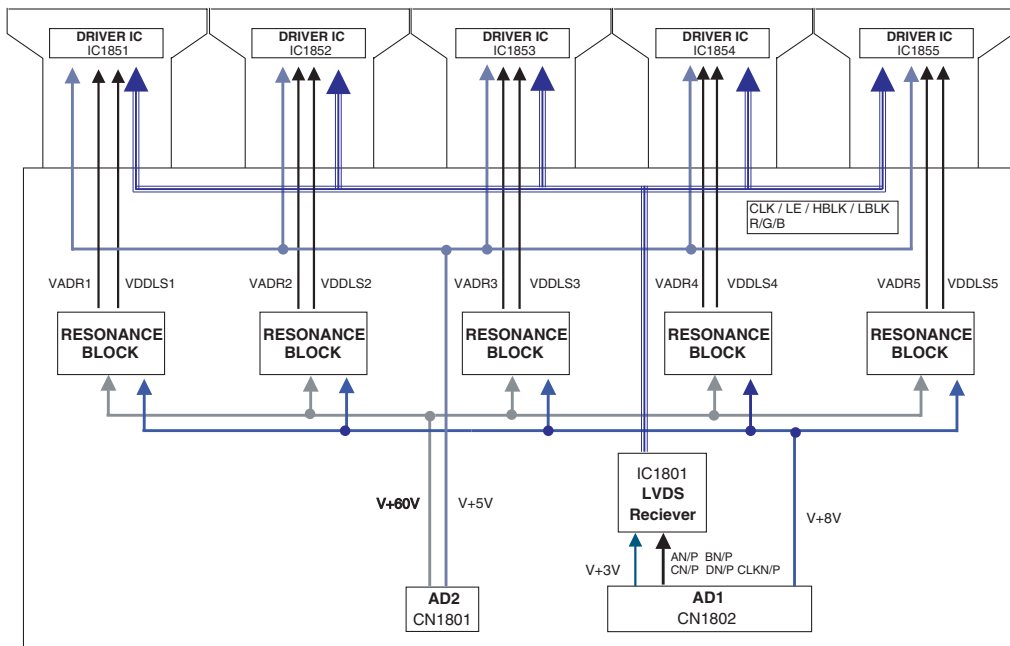


4.4 OVERALL BLOCK DIAGRAM (2/2)

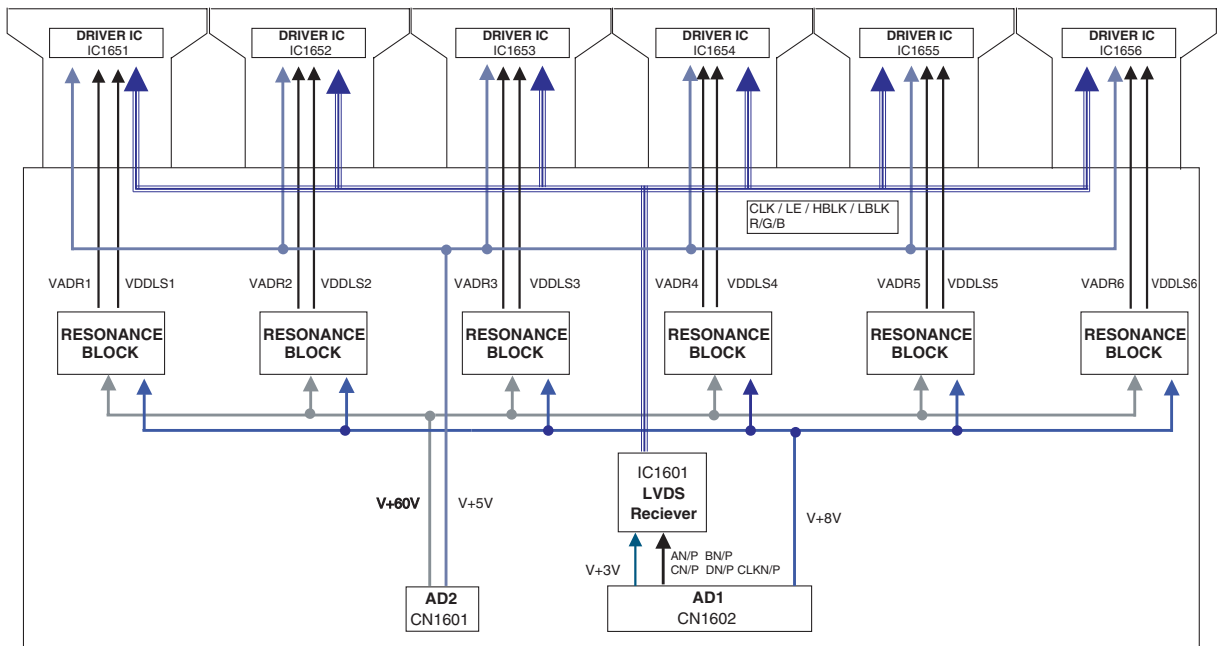


4.5 50 ADDRESS S and L ASSYS

50 ADDRESS S ASS'Y



50 ADDRESS L ASS'Y



4.6 50 SCAN A and B ASSYS

A

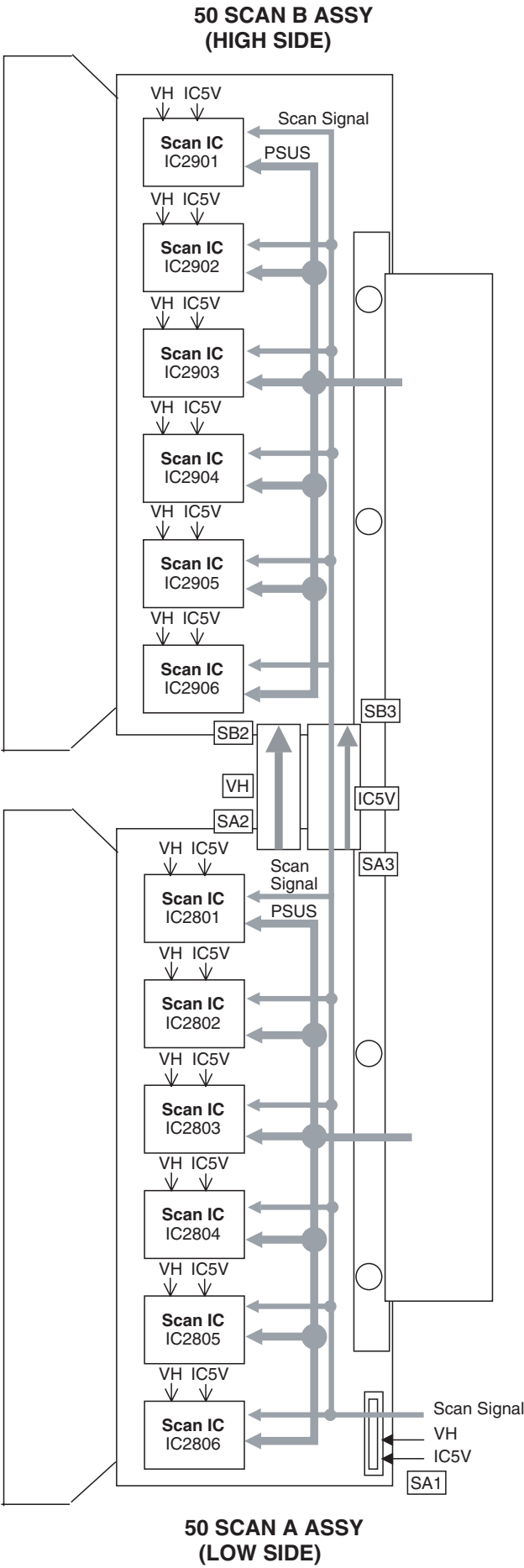
B

C

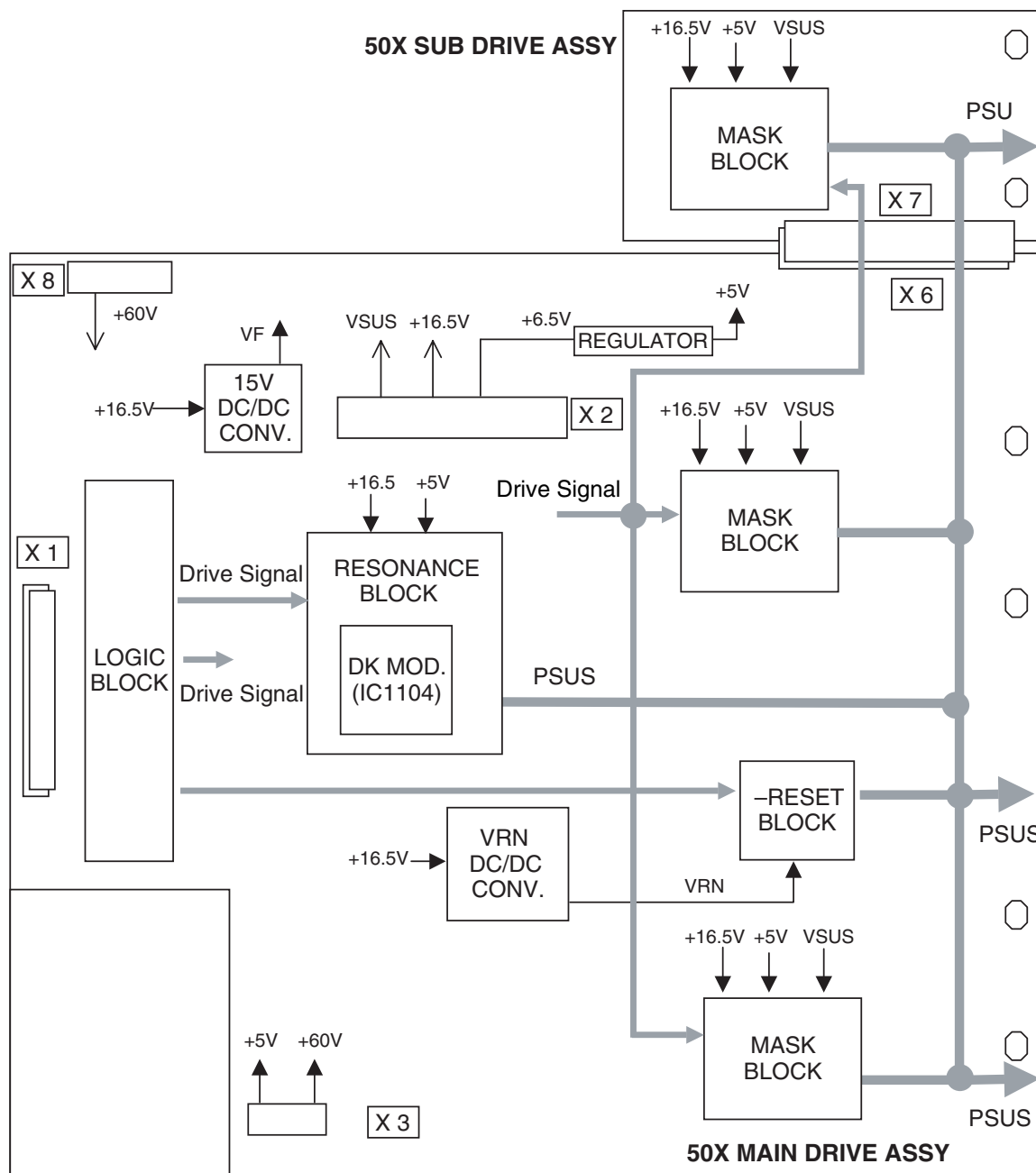
D

E

F



4.7 50X MAIN DRIVE and 50X SUB DRIVE ASSYS



4.8 50Y MAIN DRIVE and 50Y SUB DRIVE ASSYS

A

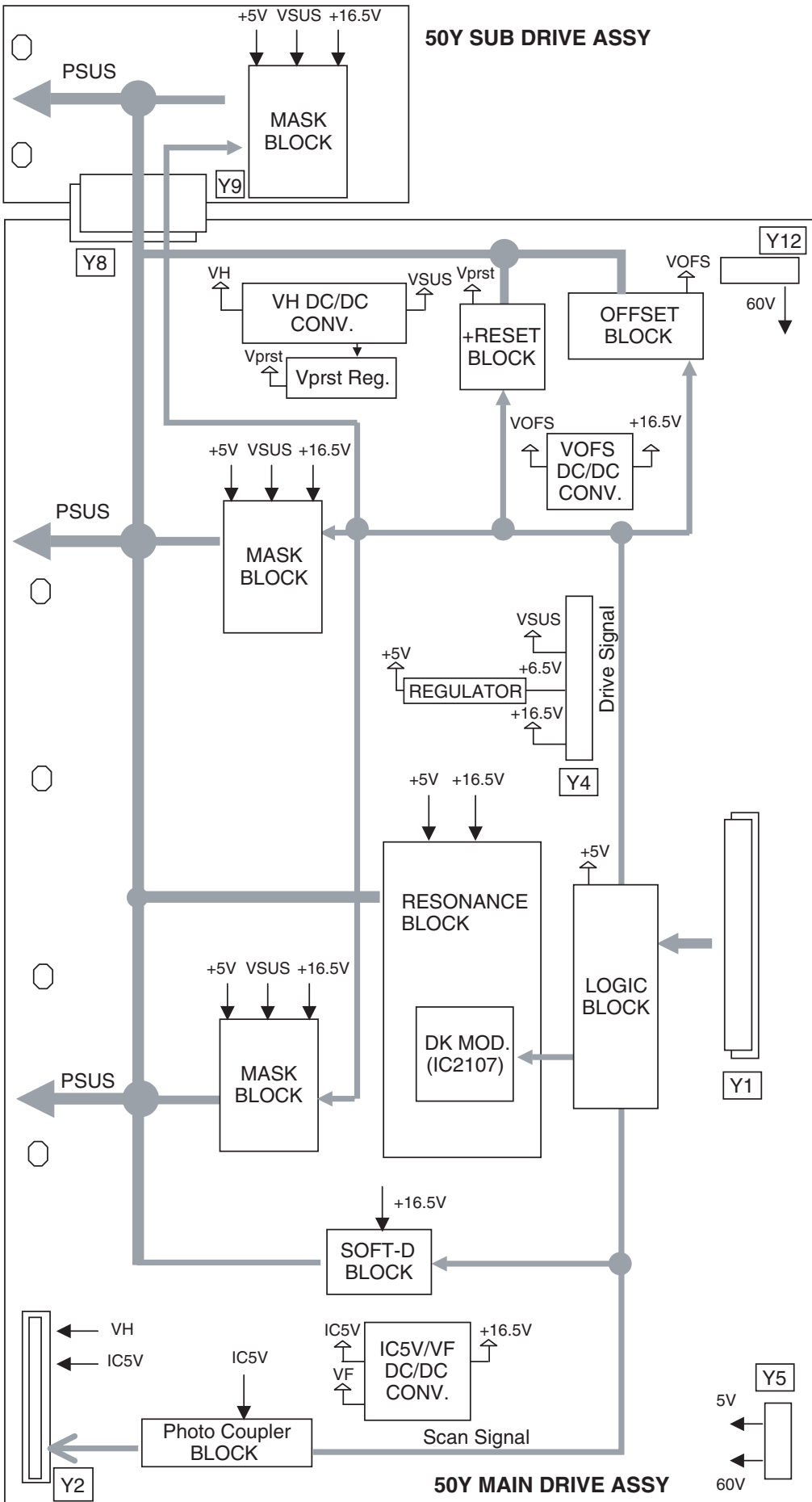
B

C

D

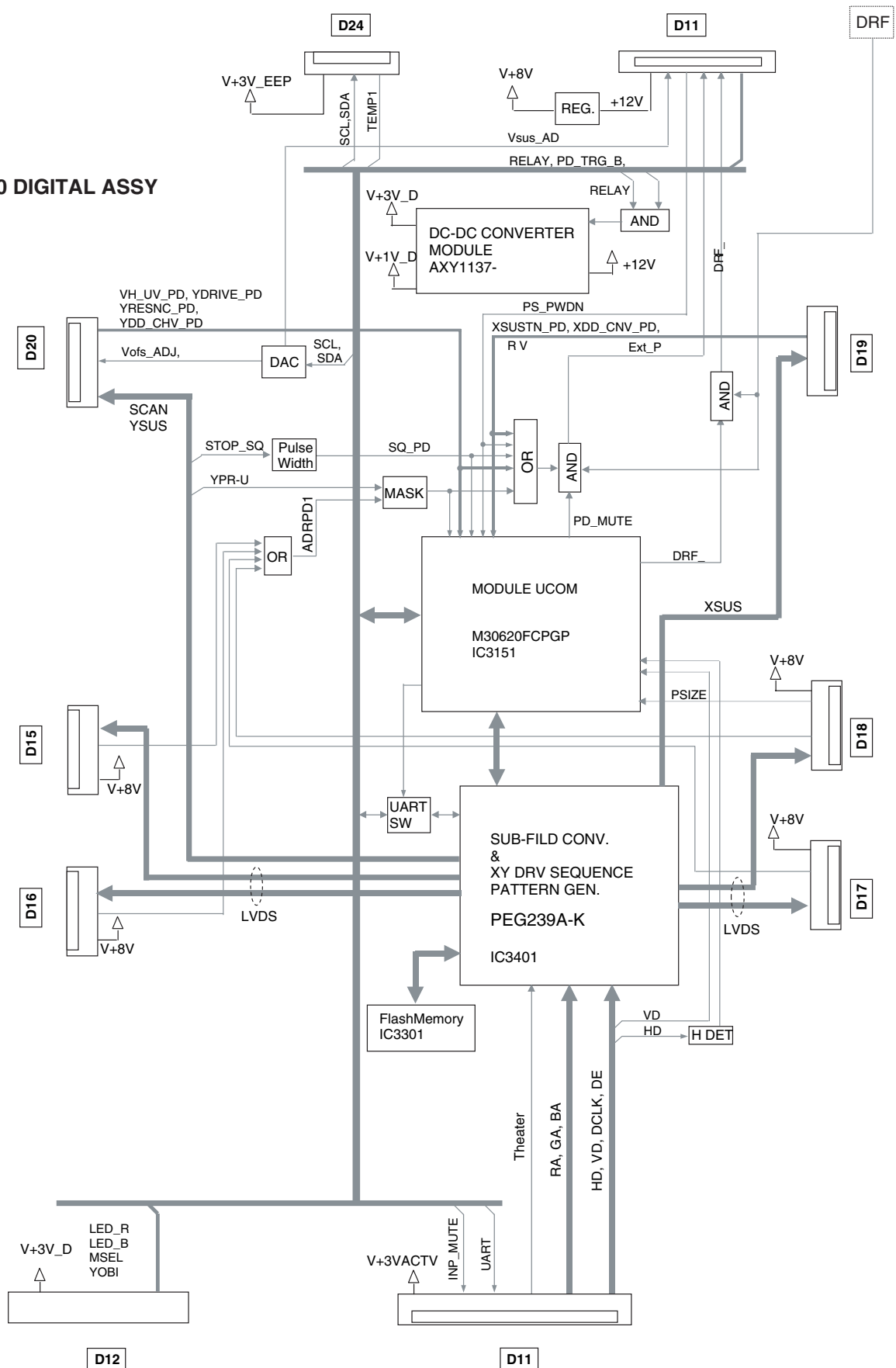
E

F



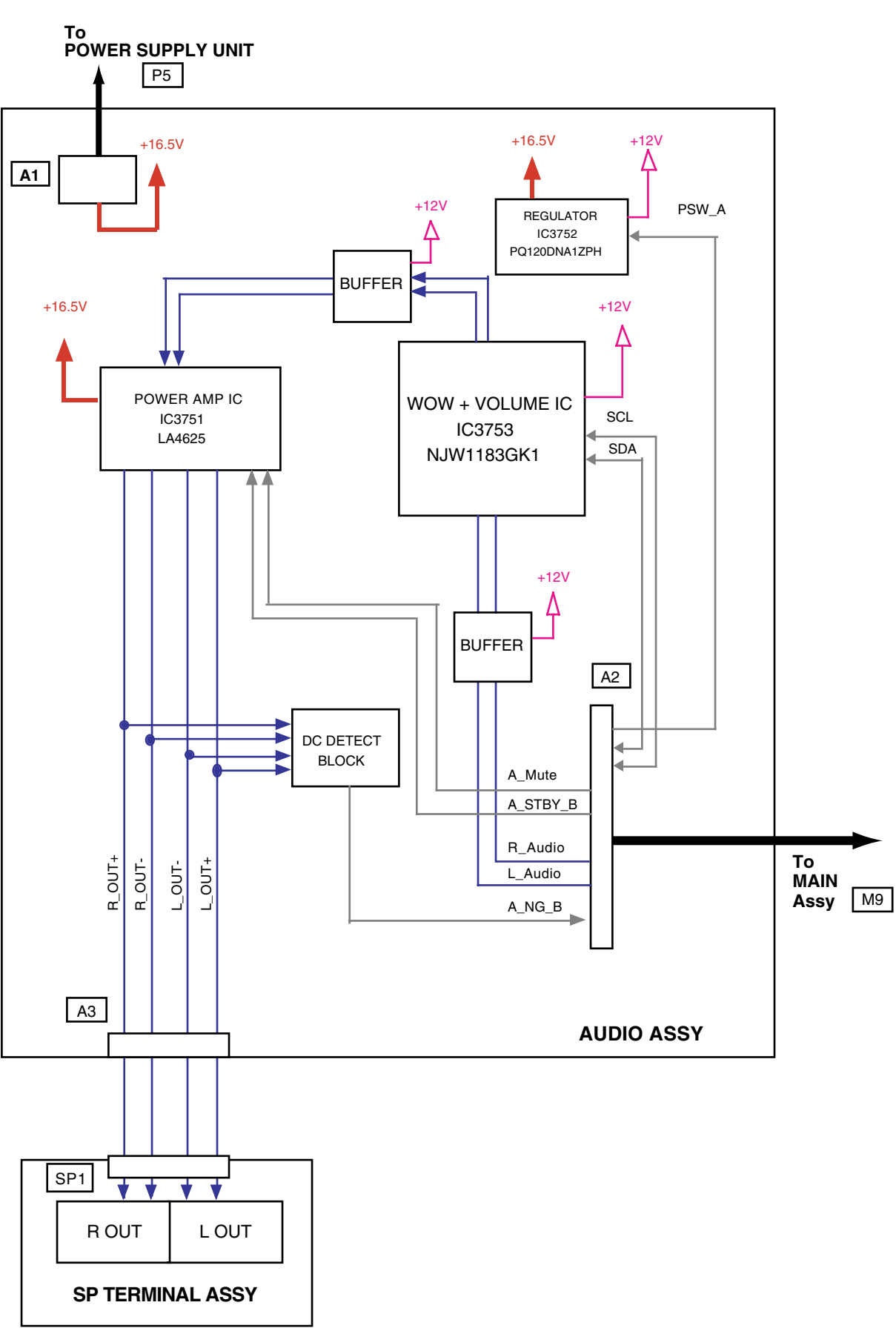
4.9 50 DIGITAL ASSY

50 DIGITAL ASSY



1 2 3 4

4.10 AUDIO ASSY



■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

7

■

8

■

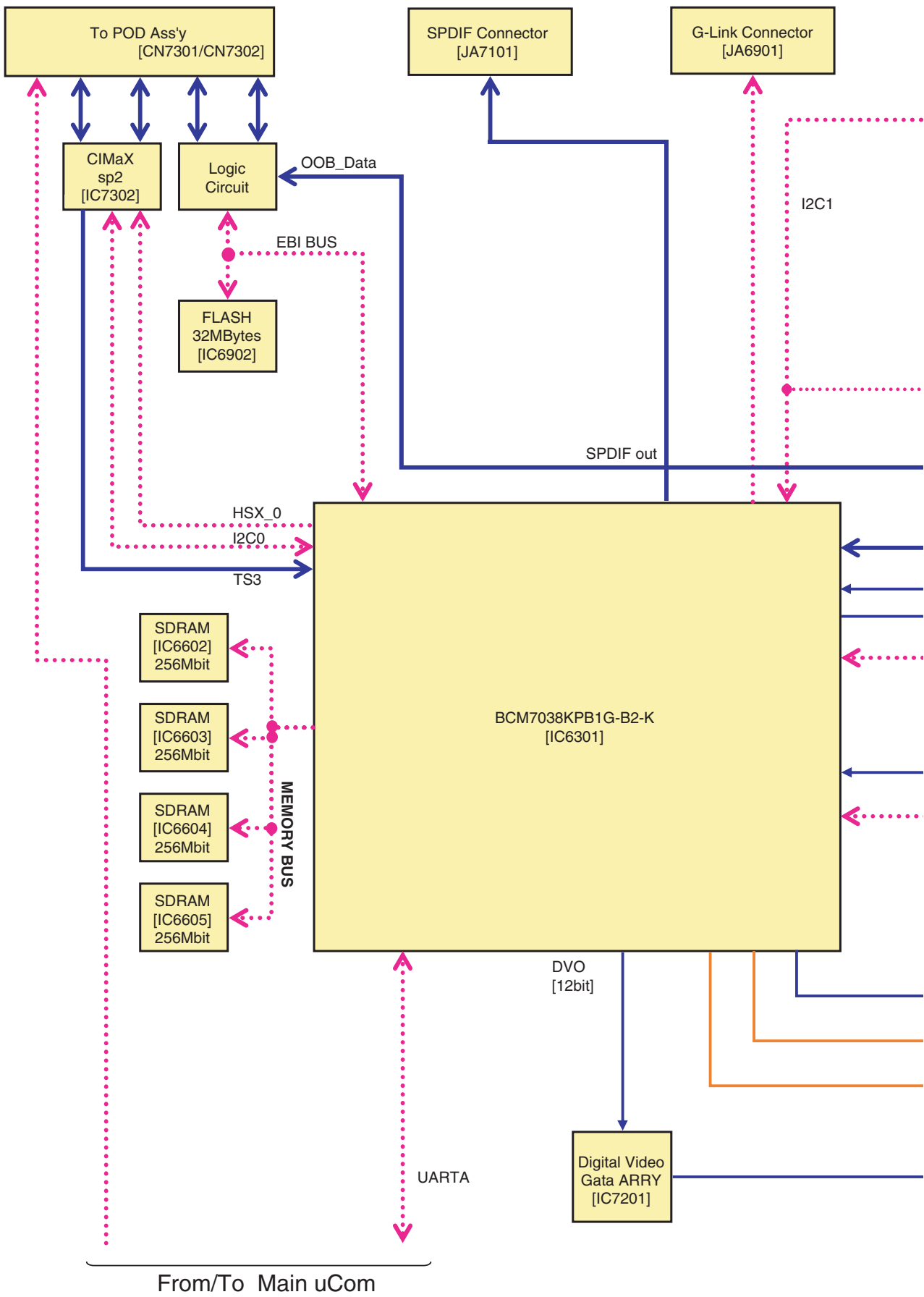
4





4.12 DTV BLOCK DIAGRAM

MTB American Digital Tuner Block R07SX (Block Diagram)



From/To Main uCom

1 2 3 4

4.13 50 X/Y DRIVE POWER LINE BLOCK DIAGRAM

A

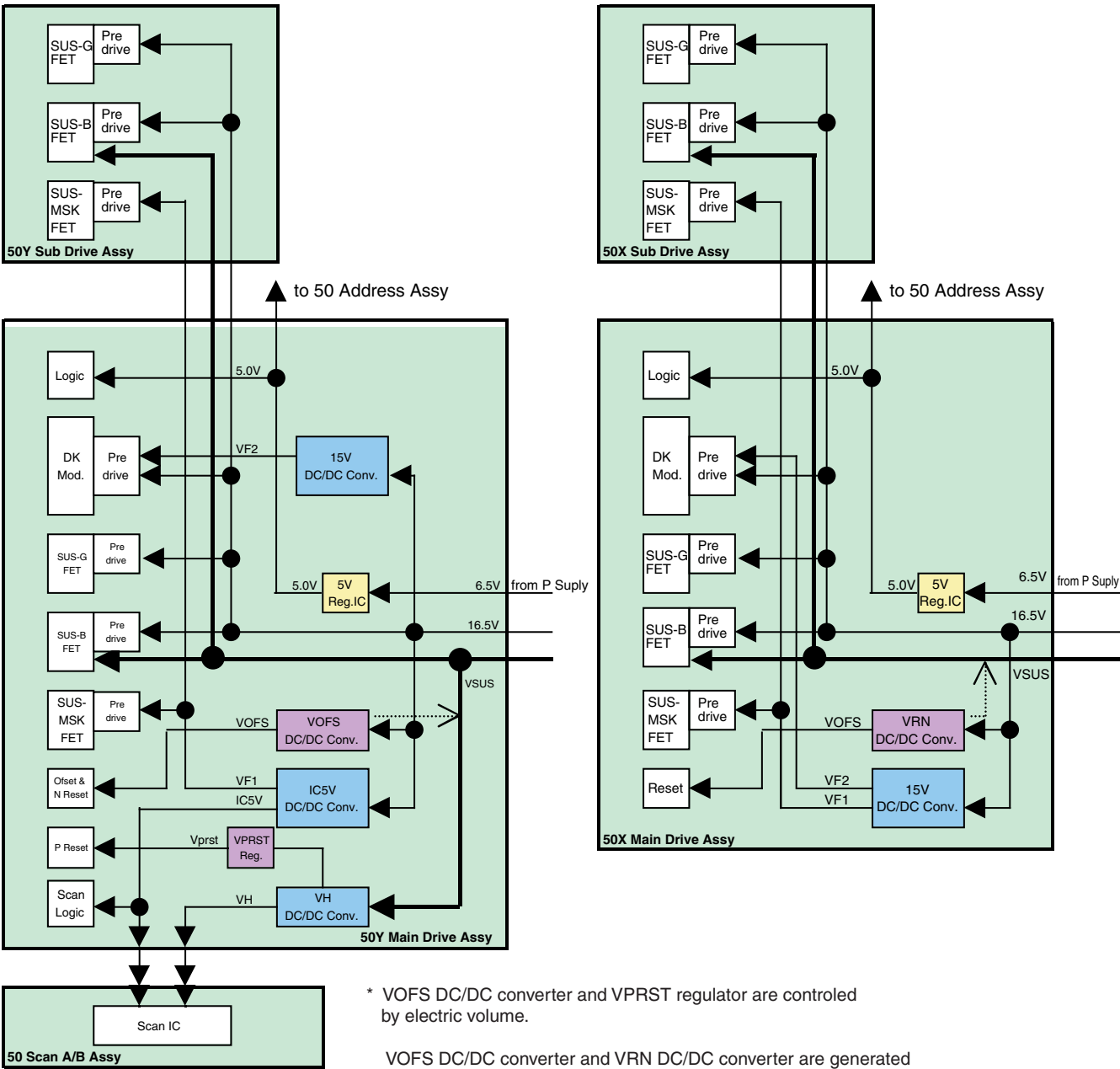
B

C

D

E

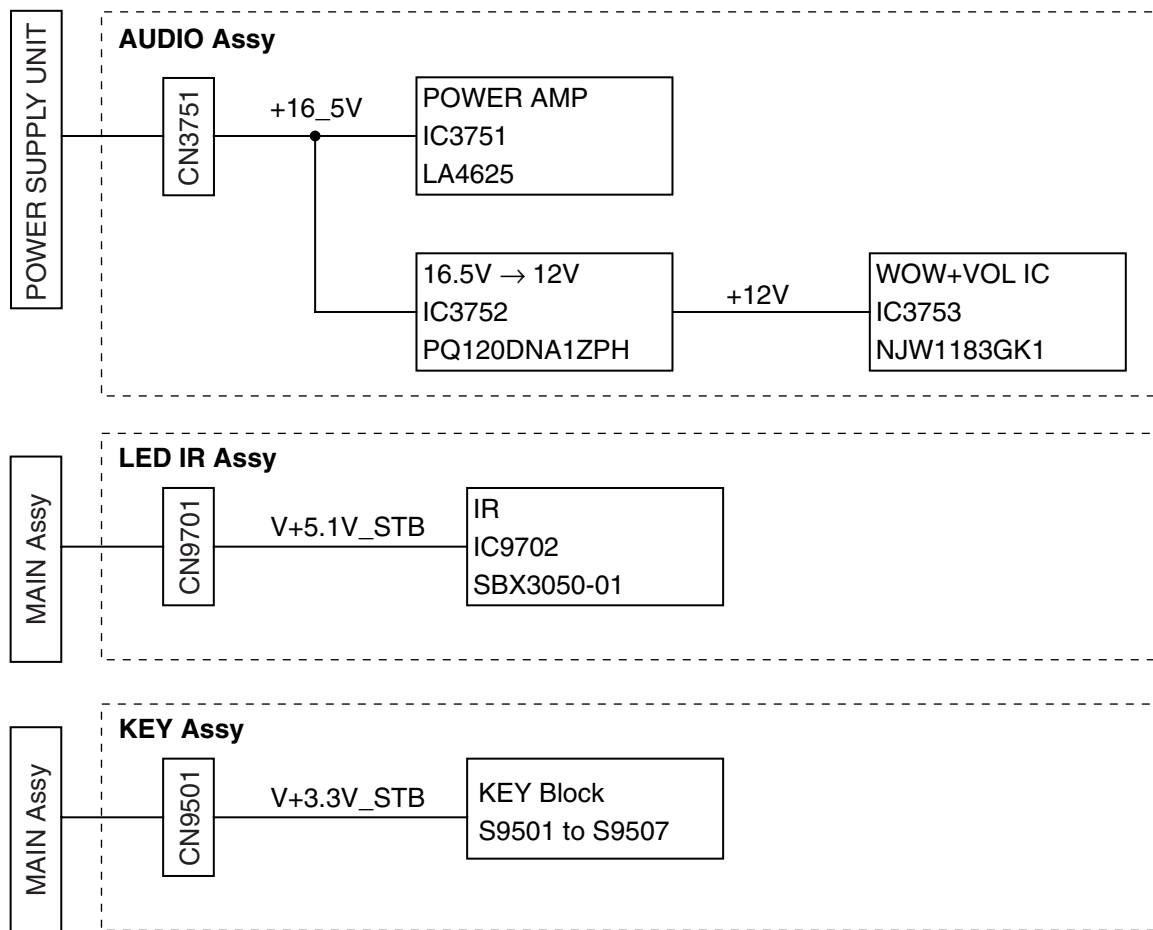
F



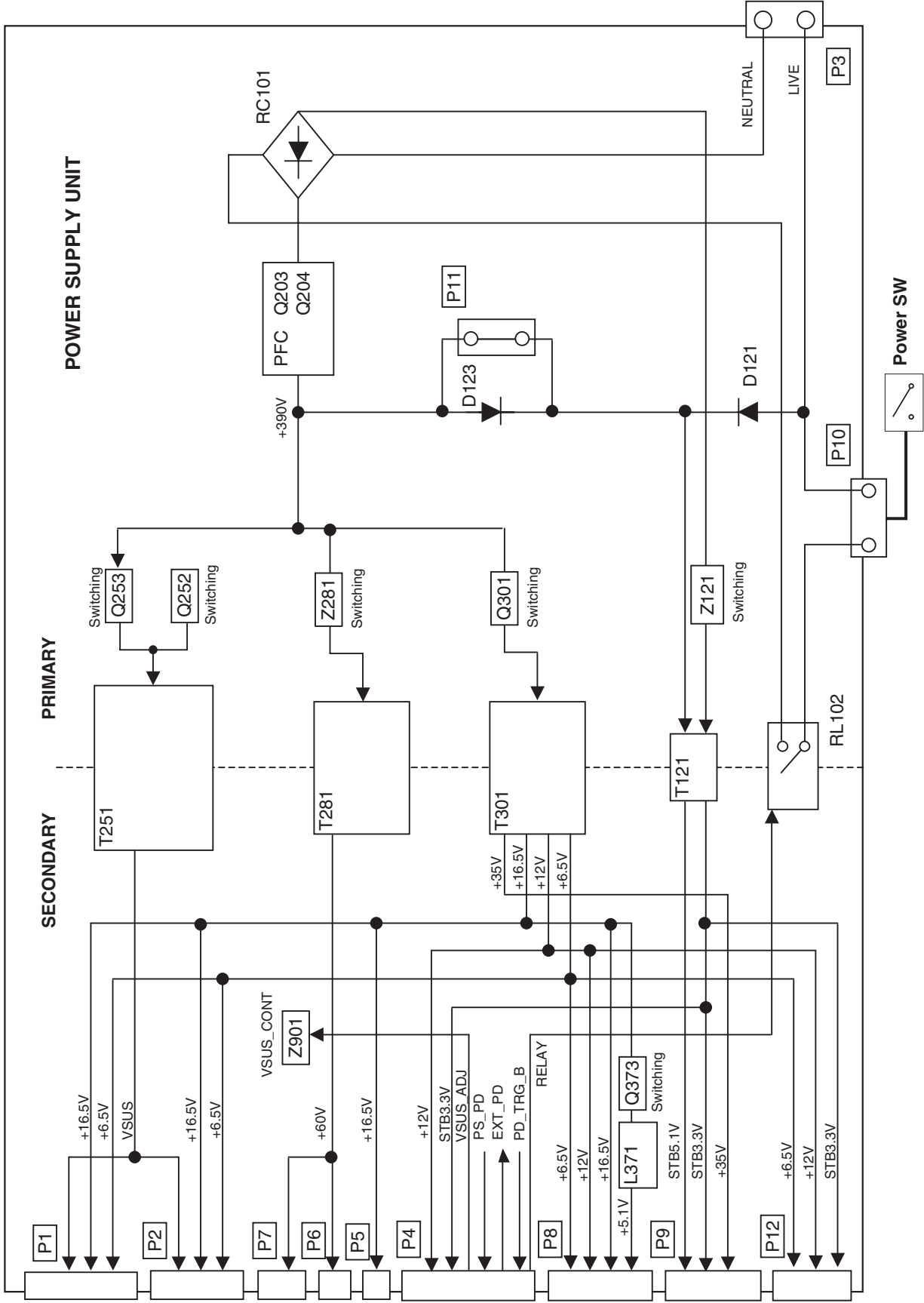
* VOFS DC/DC converter and VPRST regulator are controlled by electric volume.

VOFS DC/DC converter and VRN DC/DC converter are generated from 16.5 v, but they do not operate when Vsus is under 100V.

4.14 FUKUGO BLOCK POWER LINE BLOCK DIAGRAM



4.15 POWER SUPPLY UNIT



4.16 VOLTAGES

[Voltage of the Drive Connector]

50Y MAIN DRIVE ASSY			POWER SUPPLY UNIT		
Y4 CN2204(B9B-EH)			P1 (B9B-EH)		
No.	Name	Voltage (V)	No.	Name	
1	VSUS	205	1	VSUS	
2	VSUS	205	2	VSUS	
3	NC	-	3	NC	
4	GND_SUS	0	4	GND_SUS	
5	GND_SUS	0	5	GND_SUS	
6	GND	0	6	GND	
7	V+6.5V	5	7	V+6.5V	
8	V+16.5V	16.5	8	V+16.5V	
9	NC	-	9	NC	

50Y MAIN DRIVE ASSY			50 SCAN A ASSY		
Y2 CN2601(AKM1200-)			SA1 CN2801(AKM1261- -TFB)		
No.	Name	Voltage (V)	No.	Name	
1	V H	GNDH+130	1	V H	
2	V H	GNDH+130	2	V H	
3	NC	-	3	NC	
4	NC	-	4	NC	
5	GNDH	-60 to 350	5	GNDH	
6	SI_L	-60 to 350	6	SI_L	
7	SI_H	-60 to 350	7	SI_H	
8	CLR	-60 to 350	8	CLR	
9	OC2	-60 to 350	9	OC2	
10	OC1	-60 to 350	10	OC1	
11	CLK	-60 to 350	11	CLK	
12	LE	-60 to 350	12	LE	
13	GNDH	-60 to 350	13	GNDH	
14	GNDH_R	-60 to 350	14	GNDH_R	
15	IC5V	-60 to 350	15	IC5V	

50Y MAIN DRIVE ASSY			POWER SUPPLY UNIT		
Y12 CN2206(KM200NA5)			P7 (B6B-PH-K-S)		
No.	Name	Voltage (V)	No.	Name	
1	VADR	60	1	VADR	
2	VADR	60	2	VADR	
3	NC	-	3	NC	
4	GND_ADR	0	4	GND_ADR	
5	GND_ADR	0	5	GND_ADR	
			6	NC	

50Y SUB DRIVE ASSY			50Y MAIN DRIVE ASSY		
Y9 CN2701(14R-FJ)			Y8 CN2202(14PL-FJ)		
No.	Name	Voltage (V)	No.	Name	
1	MSK-G	-60 to 205	1	MSK-G	
2	MSK-S	-60 to 205	2	MSK-S	
3	NC	-	3	NC	
4	GND_SUS	0	4	GND_SUS	
5	SUS_G	0	5	SUS_G	
6	GND_CN	0	6	GND_CN	
7	NC	-	7	NC	
8	SUSOUT	0 to 205	8	SUSOUT	
9	SUS_B	0 to 205	9	SUS_B	
10	SUSOUT	0 to 205	10	SUSOUT	
11	SUSOUT+15V	0 to 205	11	SUSOUT+15V	
12	NC	-	12	NC	
13	VSUS	205	13	VSUS	
14	VSUS	205	14	VSUS	

50X MAIN DRIVE ASSY			POWER SUPPLY UNIT		
X2 CN1204(B8B-EH)			P2 (B8B-EH)		
No.	Name	Voltage (V)	No.	Name	
1	VSUS	205	1	VSUS	
2	VSUS	205	2	VSUS	
3	NC	-	3	NC	
4	GND_SUS	0	4	GND_SUS	
5	GND_SUS	0	5	GND_SUS	
6	GND	0	6	GND	
7	V+6.5V	5	7	V+6.5V	
8	V+16.5V	16.5	8	V+16.5V	

50X MAIN DRIVE ASSY			50X SUB DRIVE ASSY		
X6 CN1201(14PL-FJ)			X7 CN1501(14R-FJ)		
No.	Name	Voltage (V)	No.	Name	
1	MSK	-180 to 205	1	MSK	
2	PSUS	-180 to 205	2	PSUS	
3	NC	-	3	NC	
4	GND_SUS	0	4	GND_SUS	
5	SUS_G	0	5	SUS_G	
6	GND_CN	0	6	GND_CN	
7	NC	-	7	NC	
8	SUSOUT	0 to 205	8	SUSOU	
9	SUS_B	0 to 205	9	SUS_B	
10	SUSOUT	0 to 205	10	SUSOUT	
11	SUSOUT+15V	0 to 205	11	SUSOUT+15V	
12	NC	-	12	NC	
13	VSUS	205	13	VSUS	
14	VSUS	205	14	VSUS	

50X MAIN DRIVE ASSY			POWER SUPPLY UNIT		
X8 CN1205(KM200NA5)			P6 (B5B-PH-K-S)		
No.	Name	Voltage (V)	No.	Name	
1	VADR	60	1	VADR	
2	VADR	60	2	VADR	
3	NC	-	3	NC	
4	GND_ADR	0	4	GND_ADR	
5	GND_ADR	0	5	GND_ADR	

50Y MAIN DRIVE ASSY			50 ADDRESS L ASSY		50 ADDRESS S ASSY	
Y5 CN2205(KM200NA8)			AD1 CN1601(AKM1290- -TBB)		AD1 CN1801(AKM1290- -TBB)	
No.	Name	Voltage (V)	No.	Name	No.	Name
1	VADR	60	1	VADR	1	VADR
2	VADR	60				
3	GND_ADR	0	2	GND_ADR	2	GND_ADR
4	GND_ADR	0				
5	V+5.1V	5	3	V+5.1V	3	V+5.1V
6	V+5.1V	5				
7	GND	0	4	GND	4	GND
8	GND	0				

50X MAIN DRIVE ASSY			50 ADDRESS S ASSY		50 ADDRESS L ASSY	
X3 CN1202(KM200NA8)			AD1 CN1801(AKM1290- -TBB)		AD1 CN1601(AKM1290- -TBB)	
No.	Name	Voltage (V)	No.	Name	No.	Name
1	VADR	60	1	VADR	1	VADR
2	VADR	60				
3	GND_ADR	0	2	GND_ADR	2	GND_ADR
4	GND_ADR	0				
5	V+5.1V	5	3	V+5.1V	3	V+5.1V
6	V+5.1V	5				
7	GND	0	4	GND	4	GND
8	GND	0				

TANSHI Assy

MTB MAIN Assy

CN8802(AKM1349- -TBB)			CN4004(AKM1349- -TBB)		
No.	Name	Voltage (V)	Name	No.	
1	INPUT2_PR	2.5	INPUT2_PR	50	
2	GND	0	GND	49	
3	INPUT2_PB	2.5	INPUT2_PB	48	
4	GND	0	GND	47	
5	INPUT2_Y	2.5	INPUT2_Y	46	
6	GND	0	GND	45	
7	INPUT2_PLUG	2.5	INPUT2_PLUG	44	
8	GND	0	GND	43	
9	INPUT3_PR	2.5	INPUT3_PR	42	
10	GND	0	GND	41	
11	INPUT3_PB	2.5	INPUT3_PB	40	
12	GND	0	GND	39	
13	INPUT3_Y	2.5	INPUT3_Y	38	
14	GND	0	GND	37	
15	INPUT6_L	4.6	INPUT6_L	36	
16	GND	0	GND	35	
17	INPUT6_R	4.6	INPUT6_R	34	
18	GND	0	GND	33	
19	INPUT5_L	4.6	INPUT5_L	32	
20	GND	0	GND	31	
21	INPUT5_R	4.6	INPUT5_R	30	
22	GND	0	GND	29	
23	INPUT3_L	4.6	INPUT3_L	28	
24	GND	0	GND	27	
25	INPUT3_R	4.6	INPUT3_R	26	
26	GND	0	GND	25	
27	INPUT1_V	2.6	INPUT1_V	24	
28	GND	0	GND	23	
29	INPUT1_SC	2.1	INPUT1_SC	22	
30	INPUT1_S2	0.2	INPUT1_S2	21	
31	INPUT1_SPLUG	4.9	INPUT1_SPLUG	20	
32	INPUT1_SY	2.6	INPUT1_SY	19	
33	GND	0	GND	18	
34	INPUT2_V	2.6	INPUT2_V	17	
35	GND	0	GND	16	
36	INPUT2_SC	2.1	INPUT2_SC	15	
37	INPUT2_S2	0.2	INPUT2_S2	14	
38	INPUT2_SPLUG	4.7	INPUT2_SPLUG	13	
39	INPUT2_SY	2.3	INPUT2_SY	12	
40	GND	0	GND	11	
41	GND	0	GND	10	
42	GND	0	GND	9	
43	GND	0	GND	8	
44	GND	0	GND	7	
45	GND	0	GND	6	
46	GND	0	GND	5	
47	TEMP_2	2.2	TEMP_2	4	
48	V+9V_A	9.2	V+9V_A	3	
49	V+9V_A	9.2	V+9V_A	2	
50	V+3.3V_UCOM	3.3	V+3.3V_UCOM	1	

TANSHI Assy

MTB MAIN Assy

CN8803(AKM1348- -TBB)			CN4005(AKM1348- -TBB)		
No.	Name	Voltage (V)	Name	No.	
1	MON_OUT_V	1.5	MON_OUT_V	40	
2	GND	0	GND	39	
3	INPUT1_L	4.5	INPUT1_L	38	
4	GND	0	GND	37	
5	INPUT1_R	4.1	INPUT1_R	36	
6	GND	0	GND	35	
7	INPUT2_L	4.5	INPUT2_L	34	
8	GND	0	GND	33	
9	INPUT2_R	4.5	INPUT2_R	32	
10	GND	0	GND	31	
11	SW_OUT	0.5	SW_OUT	30	
12	GND	0	GND	29	
13	MON_OUT_L	0.7	MON_OUT_L	28	
14	GND	0	GND	27	
15	MON_OUT_R	1	MON_OUT_R	26	
16	GND	0	GND	25	
17	REM_B	4.8	REM_B	24	
18	SR_IN	4.8	SR_IN	23	
19	TXD_SR4	3.2	TXD_SR4	22	
20	RXD_SR4	3.2	RXD_SR4	21	
21	GND	0	GND	20	
22	PC_LCH	4.6	PC_LCH	19	
23	GND	0	GND	18	
24	PC_RCH	4.6	PC_RCH	17	
25	GND	0	GND	16	
26	GND	0	GND	15	
27	V+5V_A	4.9	V+5V_A	14	
28	INPUT4_PLUG	4.9	INPUT4_PLUG	13	
29	GND	0	GND	12	
30	INPUT4_Y	2.5	INPUT4_Y	11	
31	GND	0	GND	10	
32	INPUT4_PB	2.5	INPUT4_PB	9	
33	GND	0	GND	8	
34	INPUT4_PR	2.5	INPUT4_PR	7	
35	GND	0	GND	6	
36	INPUT4_V	2.5	INPUT4_V	5	
37	GND	0	GND	4	
38	INPUT4_L	4.5	INPUT4_L	3	
39	GND	0	GND	2	
40	INPUT4_R	4.5	INPUT4_R	1	

POD Assy			MTB MAIN Ass'y	
CN9002(AKM1348- -TBB)		Voltage (V)	CN7301(AKM1354- -TFB)	
No.	Name		Name	No.
1	GND	0	GND	1
2	GND	0	GND	2
3	MD3	0	MD3	3
4	CD1A	3.3	CD1A	4
5	MD4	3.3	MD4	5
6	MDOA3	0	MDOA3	6
7	MD5	0	MD5	7
8	MDOA4	0	MDOA4	8
9	MD6	3.3	MD6	9
10	MDOA5	0	MDOA5	10
11	MD7	3.3	MD7	11
12	MDOA6	0	MDOA6	12
13	CE1A	3.3	CE1A	13
14	MDOA7	0	MDOA7	14
15	MA10	0	MA10	15
16	CE2A	3.3	CE2A	16
17	OE	3.3	OE	17
18	POD_VS1	3.3	POD_VS1	18
19	MA11	0	MA11	19
20	IORD	3.3	IORD	20
21	POB_DATA	0	POB_DATA	21
22	IOWR	3.3	IOWR	22
23	GND	0	GND	23
24	POB_CLK	3.3	POB_CLK	24
25	GND	0	GND	25
26	MISTRTA	0	MISTRTA	26
27	MA13	3.3	MA13	27
28	MDIA0	0	MDIA0	28
29	GND	0	GND	29
30	MOCLKA	0	MOCLKA	30
31	GND	0	GND	31
32	MDIA1	0	MDIA1	32
33	WE	3.3	WE	33
34	MDIA2	0	MDIA2	34
35	RDY/IRQA	3.3	RDY/IRQA	35
36	MDIA3	0	MDIA3	36
37	VCC	3.3	VCC	37
38	VCC	3.3	VCC	38
39	VCC	3.3	VCC	39
40	GND	0	GND	40

POD Assy			MTB MAIN Assy	
CN9001(AKM1348- -TBB)		Voltage (V)	CN7302(AKM1354- -TFB)	
No.	Name		Name	No.
1	GND	0	GND	1
2	GND	0	GND	2
3	VPP	3.3	VPP	3
4	VPP	3.3	VPP	4
5	MIVALA	0	MIVALA	5
6	MDIA4	0	MDIA4	6
7	GND	0	GND	7
8	MICLKA	0	MICLKA	8
9	GND	0	GND	9
10	MDIA5	0	MDIA5	10
11	MA12	0	MA12	11
12	MDIA6	0	MDIA6	12
13	TX_Q	0	TX_Q	13
14	MDIA7	0	MDIA7	14
15	TX_EN	0	TX_EN	15
16	POD_VS2	3.3	POD_VS2	16
17	YX_I	3.3	YX_I	17
18	RSTA	0	RSTA	18
19	OOB_EN	0	OOB_EN	19
20	WAITA	3.3	WAITA	20
21	MA3	0	MA3	21
22	DSUB_DET	0	DSUB_DET	22
23	MA2	0	MA2	23
24	REG	3.3	REG	24
25	MA1	3.3	MA1	25
26	MOVALA	0	MOVALA	26
27	MA0	0	MA0	27
28	MOSTRTA	0	MOSTRTA	28
29	MDO	0	MDO	29
30	MDOA0	0	MDOA0	30
31	MD1	0	MD1	31
32	MDOA1	3.3	MDOA1	32
33	MD2	3.3	MD2	33
34	MDOA2	0	MDOA2	34
35	WE_ROM	0	WE_ROM	35
36	CD2A	3.3	CD2A	36
37	GND	0	GND	37
38	V+3.3V_UCOM	3.4	V+3.3V_UCOM	38
39	TEMP2_P	2.2	TEMP2_P	39
40	GND	0	GND	40

POD Assy			MTB MAIN Assy	
CN9003(CKS3826-)		Voltage (V)	CN4013(AKM1233- -TBB)	
No.	Name		Name	No.
12	PC_H	0	PC_H	12
11	PC_V	0	PC_V	11
10	GND	0	GND	10
9	PC_B	2.4*	PC_B	9
8	GND	0	GND	8
7	PC_G	2.4*	PC_G	7
6	GND	0	GND	6
5	PC_R	2.4*	PC_R	5
4	GND	0	GND	4
3	V+5V_A	5	V+5V_A	3
2	GND	0	GND	2
1	V+9V_A	9.2	V+9V_A	1

* When PC signal is not inputted.

AUDIO Assy

MTB MAIN Assy

CN3752(KM200NA11)			CN4007(KM200NA11)	
No.	Name	Voltage (V)	Name	No.
11	PSW_A	2.8	PSW_A	11
10	SDA_AU	3.4	SDA_AU	10
9	SCL_AU	3.4	SCL_AU	9
8	A_MUTE	0	A_MUTE	8
7	A_STBY_B	3.3	A_STBY_B	7
6	GND	0	GND	6
5	AUDIO_R	0	AUDIO_R	5
4	GND	0	GND	4
3	AUDIO_L	0	AUDIO_L	3
2	GND	0	GND	2
1	A_NG_B	2.8	A_NG_B	1

LED IR Assy/KEY Assy

MTB MAIN Assy

CN9701 / CN9501			Voltage (V)	CN4010(KM200NA7)	
No.	Connector	Name		Name	No.
2	CN9701	REM	0	REM	7
6	CN9701	GND	0	GND	6
1	CN9701	V+5.1V_STB	5	V+5.1V_STB	5
4	CN9501	V+3.3V_STB	3.4	V+3.3V_STB	4
3	CN9501	KEY_AD1	3.4	KEY_AD1	3
2	CN9501	KEY_AD2	3.4	KEY_AD2	2
1	CN9501	GND	0	GND	1

50 LED Assy/LED IR Assy

MTB MAIN Assy

CN9601 / CN9701			Voltage (V)	CN4006(KM200NA6)	
No.	Connector	Name		Name	No.
1	CN9651	LED-	0.2	LED-	1
2	CN9651	LED_ON	3.4	LED_ON	2
3	CN9651	LED_OFF	0	LED_OFF	3
4	CN9701	LED_REC	0	LED_REC	4
5	CN9701	LED_MDM	0	LED_MDM	5
3	CN9701	LED-	0.2	LED-	6

POWER SUPPLY UNIT

MTB MAIN Assy

P8(B13B-PH-K-S)			CN4002(KM200NA13)	
No.	Name	Voltage (V)	Name	No.
1	V+6.5V	6.9	V+6.5V	1
2	GND	0	GND	2
3	V+12V	12.2	V+12V	3
4	GND	0	GND	4
5	V+16.5V	17.3	V+16.5V	5
6	GND	0	GND	6
7	V+5_1V	5.1	V+5_1V	7
8	V+5_1V	5.1	V+5_1V	8
9	V+5_1V	5.1	V+5_1V	9
10	V+5_1V	5.1	V+5_1V	10
11	GND	0	GND	11
12	GND	0	GND	12
13	GND	0	GND	13

POWER SUPPLY UNIT

MTB MAIN Assy

P9(B11B-PH-K-S)			CN4008(KM200NA11)	
No.	Name	Voltage (V)	Name	No.
1	M_SW_DET	3.2	M_SW_DET	1
2	AC_DET	2.9	AC_DET	2
3	N.C.	3.35	N.C.(RELAY)	3
4	GND-D	0	GND	4
5	STB3.3V	3.3	V+3.3V_STB	5
6	GND-D	0	GND	6
7	STBY5.1V	5.1	V+5.1V_STB	7
8	GND-D	0	GND	8
9	+35V	37.3	V+35V	9
10	GND-D	0	GND	10
11	US-SW	2.3	US-SW	11

FAN

MTB MAIN Assy

CN4009(AKM1274- -TBB)		
No.	Name	Voltage (V)
		7.7/11
		0
		0

TRAP-SW

MTB MAIN Assy

CN4018(AKM1213- -TFB)		
No.	Name	Voltage (V)
		3.3
		3.3
		3.3

USB

MTB MAIN Assy

CN7101(AKM1276- -TBB)		
No.	Name	Voltage (V)
		5.0
		0
		0
		0
		0

50 DIGITAL ASSY

CN3001 (D11) ↔ MAIN ASSY CN4001 (M1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	GND	—	GND	—	—
2	V+3.3V_UCOM2	I	Power supply for module microcomputer	3.3	—
3	INP_MUTE	O	Video signal input shut out control signal	0	—
4	THEATER	I	Control signal for pure cinema	0 to 3.3	—
5	VD	I	Vertical synchronized signal	0 to 3.3	—
6	HD	I	Horizontal synchronized signal	0 to 3.3	—
7	DE	I	Data enable signal	0 to 3.3	—
8	GND	—	GND	—	—
9	CLK	I	Data clock signal	0 to 3.3	—
10	GND	—	GND	—	—
11	GND	—	GND	—	—
12	VIDEO_R9	I	10 bit video signal input (RED)	0 to 3.3	—
13	VIDEO_R8	I	10 bit video signal input (RED)	0 to 3.3	—
14	VIDEO_R7	I	10 bit video signal input (RED)	0 to 3.3	—
15	VIDEO_R6	I	10 bit video signal input (RED)	0 to 3.3	—
16	VIDEO_R5	I	10 bit video signal input (RED)	0 to 3.3	—
17	VIDEO_R4	I	10 bit video signal input (RED)	0 to 3.3	—
18	VIDEO_R3	I	10 bit video signal input (RED)	0 to 3.3	—
19	VIDEO_R2	I	10 bit video signal input (RED)	0 to 3.3	—
20	VIDEO_R1	I	10 bit video signal input (RED)	0 to 3.3	—
21	VIDEO_R0	I	10 bit video signal input (RED)	0 to 3.3	—
22	GND	—	GND	—	—
23	VIDEO_G9	I	10 bit video signal input (GREEN)	0 to 3.3	—
24	VIDEO_G8	I	10 bit video signal input (GREEN)	0 to 3.3	—
25	VIDEO_G7	I	10 bit video signal input (GREEN)	0 to 3.3	—
26	VIDEO_G6	I	10 bit video signal input (GREEN)	0 to 3.3	—
27	VIDEO_G5	I	10 bit video signal input (GREEN)	0 to 3.3	—
28	VIDEO_G4	I	10 bit video signal input (GREEN)	0 to 3.3	—
29	VIDEO_G3	I	10 bit video signal input (GREEN)	0 to 3.3	—
30	VIDEO_G2	I	10 bit video signal input (GREEN)	0 to 3.3	—
31	VIDEO_G1	I	10 bit video signal input (GREEN)	0 to 3.3	—
32	VIDEO_G0	I	10 bit video signal input (GREEN)	0 to 3.3	—
33	GND	—	GND	—	—
34	VIDEO_B9	I	10 bit video signal input (BLUE)	0 to 3.3	—
35	VIDEO_B8	I	10 bit video signal input (BLUE)	0 to 3.3	—
36	VIDEO_B7	I	10 bit video signal input (BLUE)	0 to 3.3	—
37	VIDEO_B6	I	10 bit video signal input (BLUE)	0 to 3.3	—
38	VIDEO_B5	I	10 bit video signal input (BLUE)	0 to 3.3	—
39	VIDEO_B4	I	10 bit video signal input (BLUE)	0 to 3.3	—
40	VIDEO_B3	I	10 bit video signal input (BLUE)	0 to 3.3	—
41	VIDEO_B2	I	10 bit video signal input (BLUE)	0 to 3.3	—
42	VIDEO_B1	I	10 bit video signal input (BLUE)	0 to 3.3	—
43	VIDEO_B0	I	10 bit video signal input (BLUE)	0 to 3.3	—
44	GND	—	GND	—	—
45	RESERVE (N.C.)	—	Reserve	—	—
46	AC_OFF (N.C.)	O	AC state input	—	—
47	TXD_MD	O	UART communication	3.3	—
48	RXD_MD	I	UART communication	3.3	—
49	REQ_MD	O	Communication demand to main system	0	—
50	MODE	O	Model distinction	0	—

A **CN3002 (D12) ↔ Reserve (Non connection)**

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	V+3V_D	O	+3.3 V power supply output	3.3	—
2	V+3V_D	O	+3.3 V power supply output	3.3	—
3	V+3V_D	O	+3.3 V power supply output	3.3	—
4	GND_D	—	GND	—	—
5	GND_D	—	GND	—	—
6	GND_D	—	GND	—	—
7	LED_R	O	Red LED control output	0 to 3.3	—
8	LED_B	O	Blue LED control output	0 to 3.3	—
9	MSEL	I	Control select	0 to 3.3	—
10	PBF	I	Panel type judge	0 to 3.3	—
11	NC	I	Non connection	—	—
12	YOB10	I	Reserve input	—	—
13	YOB11	I	Reserve input	—	—
14	YOB12	I	Reserve input	—	—
15	YOB13	I	Reserve input	—	—
16	YOB14	I	Reserve input	—	—
17	NC	I	Non connection	—	—
18	NC	I	Non connection	—	—
19	V+3V_STB	O	STB 3.3 V power supply output	3.3	—
20	GND_D	—	GND	—	—

C

CN3151 (D24) ↔ SENSOR ASSY CN3651 (TE1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	V+3.3V_EEP	O	Power supply output for memory	3.3	—
2	E_SCL	O	IIC communication clock signal	0 to 3.3	—
3	E_SDA	O	IIC communication data signal	0 to 3.3	—
4	TEMP1	I	Panel temperature sensor signal	0 to 3.3	—
5	GND	—	GND	—	—

D

CN3601 (D21) ↔ POWER SUPPLY UNIT (P4)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	V+12V	I	+12 V power supply input	12	—
2	V+12V	I	+12 V power supply input	12	—
3	GND	—	GND	—	—
4	GND	—	GND	—	—
5	V+3.3V_STB	I	STB3.3 V power supply input	0 to 3.3	—
6	GND	—	GND	—	—
7	M_SW_DET	I	Mechanism switch detection signal input	0 to 3.3	—
8	EXT_PD	O	Power down signal	0 to 3.3	—
9	VSUS_ADJ	O	VSUS power supply adjustment signal	0 to 3.3	—
10	PS_PD	I	Power supply PD signal	0 to 3.3	—
11	RELAY	O	Relay control	0 to 3.3	—
12	DRF_B	O	Large power supply ON/OFF control signal	0 to 3.3	—
13	AC_DET	I	AC power supply state input	0 to 3.3	—
14	PD_TRG_B	I	Power down trigger signal	0 to 3.3	—

F

CN3501 (D15) ↔ 50 ADDRESS L ASSY CN1602 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	—	Non connection	—	—
2	ADR_PD	I	Address PD signal	0 to 3.3	—
3	PSIZE	I	Panel size judge signal	0	—
4	GND	—	GND	—	—
5	V+8V	O	+8 V power supply input	8	—
6	V+8V	O	+8 V power supply input	8	—
7	GND	—	GND	—	—
8	GND_LVDS	—	GND	—	—
9	NC	—	Non connection	—	—
10	TAN	O	LVDS data	1 to 1.4	—
11	TAP	O	LVDS data	1 to 1.4	—
12	NC	—	Non connection	—	—
13	GND_LVDS	—	GND	—	—
14	NC	—	Non connection	—	—
15	TBN	O	LVDS data	1 to 1.4	—
16	TBP	O	LVDS data	1 to 1.4	—
17	NC	—	Non connection	—	—
18	GND_LVDS	—	GND	—	—
19	NC	—	Non connection	—	—
20	TCN	O	LVDS data	1 to 1.4	—
21	TCP	O	LVDS data	1 to 1.4	—
22	NC	—	Non connection	—	—
23	GND_LVDS	—	GND	—	—
24	NC	—	Non connection	—	—
25	TCLKN	O	LVDS data	1 to 1.4	—
26	TCLKP	O	LVDS data	1 to 1.4	—
27	NC	—	Non connection	—	—
28	GND_LVDS	—	GND	—	—
29	NC	—	Non connection	—	—
30	TDN	O	LVDS data	1 to 1.4	—
31	TDP	O	LVDS data	1 to 1.4	—
32	NC	—	Non connection	—	—
33	GND_LVDS	—	GND	—	—
34	GND	—	GND	—	—
35	V+3.3V	O	+3.3 V power supply output	3.3	—
36	V+3.3V	O	+3.3 V power supply output	3.3	—
37	GND	—	GND	—	—
38	DIV1	O	Data output timing control	3.3	—
39	DIV0	O	Data output timing control	3.3	—
40	GND	—	GND	—	—

A

CN3502 (D16) ↔ 50 ADDRESS S ASSY CN1802 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	–
3	PSIZE	I	Panel size judge signal	0	–
4	GND	–	GND	–	–
5	V+8V	O	+8 V power supply input	8	–
6	V+8V	O	+8 V power supply input	8	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TAN	O	LVDS data	1 to 1.4	–
11	TAP	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TBN	O	LVDS data	1 to 1.4	–
16	TBP	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TCN	O	LVDS data	1 to 1.4	–
21	TCP	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLKN	O	LVDS data	1 to 1.4	–
26	TCLKP	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TDN	O	LVDS data	1 to 1.4	–
31	TDP	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3.3V	O	+3.3 V power supply output	3.3	–
36	V+3.3V	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV1	O	Data output timing control	0	–
39	DIV0	O	Data output timing control	0	–
40	GND	–	GND	–	–

E

F

CN3503 (D17) ↔ 50 ADDRESS S ASSY CN1802 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	—	Non connection	—	—
2	ADR_PD	I	Address PD signal	0 to 3.3	—
3	PSIZE	I	Panel size judge signal	0	—
4	GND	—	GND	—	—
5	V+8V	O	+8 V power supply input	8	—
6	V+8V	O	+8 V power supply input	8	—
7	GND	—	GND	—	—
8	GND_LVDS	—	GND	—	—
9	NC	—	Non connection	—	—
10	TAN	O	LVDS data	1 to 1.4	—
11	TAP	O	LVDS data	1 to 1.4	—
12	NC	—	Non connection	—	—
13	GND_LVDS	—	GND	—	—
14	NC	—	Non connection	—	—
15	TBN	O	LVDS data	1 to 1.4	—
16	TBP	O	LVDS data	1 to 1.4	—
17	NC	—	Non connection	—	—
18	GND_LVDS	—	GND	—	—
19	NC	—	Non connection	—	—
20	TCN	O	LVDS data	1 to 1.4	—
21	TCP	O	LVDS data	1 to 1.4	—
22	NC	—	Non connection	—	—
23	GND_LVDS	—	GND	—	—
24	NC	—	Non connection	—	—
25	TCLKN	O	LVDS data	1 to 1.4	—
26	TCLKP	O	LVDS data	1 to 1.4	—
27	NC	—	Non connection	—	—
28	GND_LVDS	—	GND	—	—
29	NC	—	Non connection	—	—
30	TDN	O	LVDS data	1 to 1.4	—
31	TDP	O	LVDS data	1 to 1.4	—
32	NC	—	Non connection	—	—
33	GND_LVDS	—	GND	—	—
34	GND	—	GND	—	—
35	V+3.3V	O	+3.3 V power supply output	3.3	—
36	V+3.3V	O	+3.3 V power supply output	3.3	—
37	GND	—	GND	—	—
38	DIV1	O	Data output timing control	3.3	—
39	DIV0	O	Data output timing control	0	—
40	GND	—	GND	—	—

A

CN3504 (D18) ↔ 50 ADDRESS L ASSY CN1602 (AD1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	NC	–	Non connection	–	–
2	ADR_PD	I	Address PD signal	0 to 3.3	–
3	PSIZE	I	Panel size judge signal	0	–
4	GND	–	GND	–	–
5	V+8V	O	+8 V power supply input	8	–
6	V+8V	O	+8 V power supply input	8	–
7	GND	–	GND	–	–
8	GND_LVDS	–	GND	–	–
9	NC	–	Non connection	–	–
10	TAN	O	LVDS data	1 to 1.4	–
11	TAP	O	LVDS data	1 to 1.4	–
12	NC	–	Non connection	–	–
13	GND_LVDS	–	GND	–	–
14	NC	–	Non connection	–	–
15	TBN	O	LVDS data	1 to 1.4	–
16	TBP	O	LVDS data	1 to 1.4	–
17	NC	–	Non connection	–	–
18	GND_LVDS	–	GND	–	–
19	NC	–	Non connection	–	–
20	TCN	O	LVDS data	1 to 1.4	–
21	TCP	O	LVDS data	1 to 1.4	–
22	NC	–	Non connection	–	–
23	GND_LVDS	–	GND	–	–
24	NC	–	Non connection	–	–
25	TCLKN	O	LVDS data	1 to 1.4	–
26	TCLKP	O	LVDS data	1 to 1.4	–
27	NC	–	Non connection	–	–
28	GND_LVDS	–	GND	–	–
29	NC	–	Non connection	–	–
30	TDN	O	LVDS data	1 to 1.4	–
31	TDP	O	LVDS data	1 to 1.4	–
32	NC	–	Non connection	–	–
33	GND_LVDS	–	GND	–	–
34	GND	–	GND	–	–
35	V+3.3V	O	+3.3 V power supply output	3.3	–
36	V+3.3V	O	+3.3 V power supply output	3.3	–
37	GND	–	GND	–	–
38	DIV1	O	Data output timing control	0	–
39	DIV0	O	Data output timing control	3.3	–
40	GND	–	GND	–	–

E

F

CN3506 (D20) ↔ 50 Y MAIN DRIVE ASSY CN2001 (Y1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
40	PSW2	O	Function standby control signal	0 to 3.3	—
39	YDRV_PD	I	Y drive PD signal	0 to 3.3	—
38	SCAN_PD	I	Y drive PD signal	0 to 3.3	—
37	YSUS_PD	I	Y drive PD signal	0 to 3.3	—
36	YDD_PD	I	Y drive PD signal	0 to 3.3	—
35	GND	—	GND	—	—
34	GND	—	GND	—	—
33	GND	—	GND	—	—
32	GND	—	GND	—	—
31	VYPRST_ADJ	O	Y drive control signal	0 to 3.3	—
30	VOFS_ADJ	O	Y drive control signal	0 to 3.3	—
29	GND	—	GND	—	—
28	YSOFT-D	O	Y drive control signal	0 to 3.3	—
27	YRsv3	O	Y drive control signal	0 to 3.3	—
26	YNOFS	O	Y drive control signal	0 to 3.3	—
25	GND	—	GND	—	—
24	YRsv2	O	Y drive control signal	0 to 3.3	—
23	YNRST	O	Y drive control signal	0 to 3.3	—
22	YSUS_MSK	O	Y drive control signal	0 to 3.3	—
21	GND	—	GND	—	—
20	SUS_MUTE	O	Y drive control signal	0 to 3.3	—
19	YPR-U	O	Y drive control signal	0 to 3.3	—
18	GND	—	GND	—	—
17	YSUS_G	O	Y drive control signal	0 to 3.3	—
16	YSUS_D	O	Y drive control signal	0 to 3.3	—
15	GND	—	GND	—	—
14	YSUS_U	O	Y drive control signal	0 to 3.3	—
13	YSUS_B	O	Y drive control signal	0 to 3.3	—
12	GND	—	GND	—	—
11	OC1 (-1)	O	Scan control signal	0 to 3.3	—
10	OC2	O	Scan control signal	0 to 3.3	—
9	LE	O	Scan control signal	0 to 3.3	—
8	GND	—	GND	—	—
7	CLK1	O	Scan control signal	0 to 3.3	—
6	CLR	O	Scan control signal	0 to 3.3	—
5	GND	—	GND	—	—
4	SI_H	O	Scan control signal	0 to 3.3	—
3	SI_L	O	Scan control signal	0 to 3.3	—
2	SCN5V_PD	I	Scan 5 V PD signal	0 to 3.3	—
1	YCN_PD	O	Y drive PD signal	0 to 3.3	—

A

CN3505 (D19) ↔ 50 X MAIN DRIVE ASSY CN1001 (X1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	PSW2	O	Function standby control signal	0 to 3.3	—
2	XSUS_PD	I	X drive PD signal	0 to 3.3	—
3	XDD_PD	I	X drive PD signal	0 to 3.3	—
4	XDRV_PD	I	X drive PD signal	0 to 3.3	—
5	GND	—	GND	—	—
6	SUS_MUTE	O	X drive control signal	0 to 3.3	—
7	XSUS_MSK	O	X drive control signal	0 to 3.3	—
8	GND	—	GND	—	—
9	XNR_D	O	X drive control signal	0 to 3.3	—
10	GND	—	GND	—	—
11	XSUS_G	O	X drive control signal	0 to 3.3	—
12	GND	—	GND	—	—
13	XSUS_D	O	X drive control signal	0 to 3.3	—
14	GND	—	GND	—	—
15	XSUS_U	O	X drive control signal	0 to 3.3	—
16	GND	—	GND	—	—
17	XSUS_B	O	X drive control signal	0 to 3.3	—
18	XCN_PD	O	X drive PD signal	0 to 3.3	—

B

C

■ Pin Function**AUDIO ASSY CN3752 (A2) ↔ MAIN ASSY CN4007 (M9)**

Pin No.	Pin Name	I/O	Function	Remarks
1	A_NG_B	O	DC detection, disconnection of cable detection	L : Abnormal, H : Normal
2	GND	—	GND for small signal	—
3	AUDIO_L	I	Small signal L ch	—
4	GND	—	GND for small signal	—
5	AUDIO_R	I	Small signal R ch	—
6	GND	—	GND for small signal	—
7	A_STBY_B	I	MUTE ON/OFF signal for LA4625 IC internal circuit	L : Standby, H : ON
8	A_MUTE	I	MUTE ON/OFF signal for LA4625 IC external circuit	L : MUTE OFF, H : MUTE
9	SCL_AU	I	CLK of I2C for NJW1183GK1 IC	—
10	SDA_AU	I/O	DATA of I2C for NJW1183GK1 IC	—
11	PSW_A	I	ON/OFF switch for 12 V regulator IC	L : OFF, H : ON

D

AUDIO ASSY CN3751 (A1) ↔ POWER SUPPLY UNIT (P5)

Pin No.	Pin Name	I/O	Function	Remarks
1	+16.5V	—	Power supply (16.5 V) for LA4625 IC	—
2	GND_D	—	Return GND for LA4625 IC	—
3	GND_D	—	Return GND for LA4625 IC	—

E

AUDIO ASSY CN3753 (A3) ↔ SP TERMINAL ASSY CN3901 (SP1)

Pin No.	Pin Name	I/O	Function	Remarks
1	RH+	O	Tweeter output R+	—
2	RL+	O	Woofer output R+ (Speaker output R+)	—
3	RH-	O	Tweeter output R-	—
4	RL-	O	Woofer output R- (Speaker output R-)	—
5	LL+	O	Woofer output L+ (Speaker output L+)	—
6	LH+	O	Tweeter output L+	—
7	LL-	O	Woofer output L- (Speaker output L-)	—
8	LH-	O	Tweeter output L-	—

F

SIDE KEY ASSY CN9501 (SW1) ↔ MAIN ASSY CN4010 (M8)

Pin No.	Pin Name	I/O	Function	Remarks
1	GND	–	GND	–
2	KEY_AD2	O	KEY voltage 2	–
3	KEY_AD1	O	KEY voltage 1	–
4	V+3.3V_STB	–	Standby 3.3 V power supply	–

50 LED ASSY CN9651 (L1) ↔ MAIN ASSY CN4006 (M5)

Pin No.	Pin Name	I/O	Function	Remarks
1	LED–	–	LED signal return	–
2	LED_ON	I	LED control for power ON	H : LED_ON, L : LED_OFF
3	LED_OFF	I	LED control for standby	H : LED_ON, L : LED_OFF

LED IR ASSY CN9701 (RE1) ↔ MAIN ASSY CN4010 (M8)

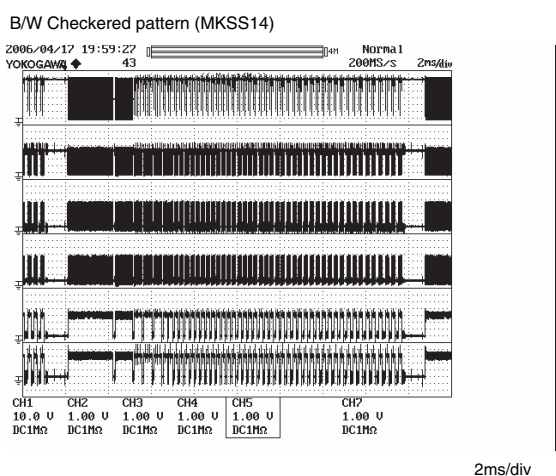
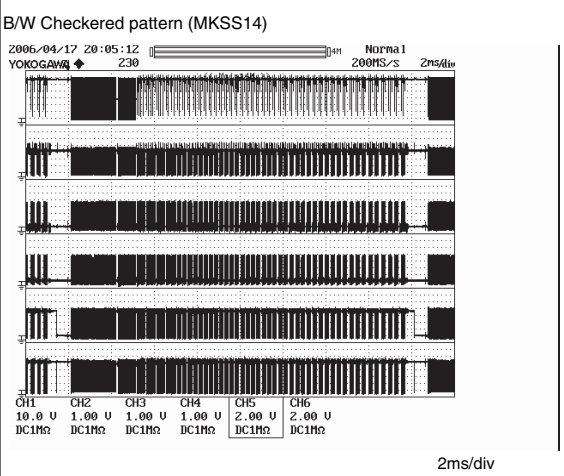
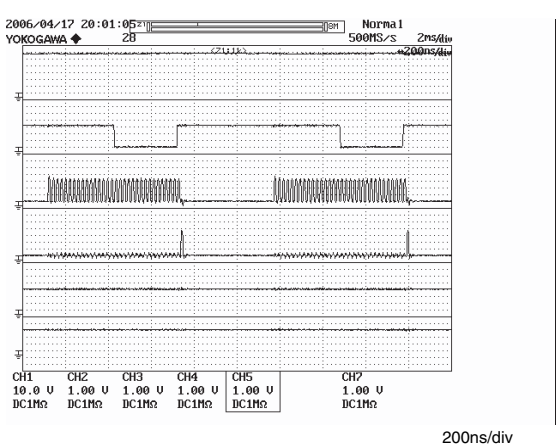
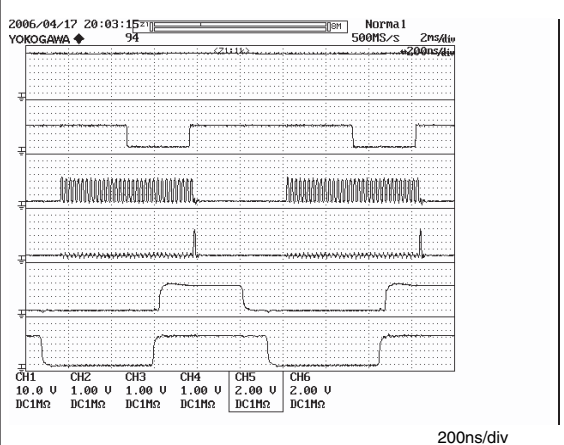
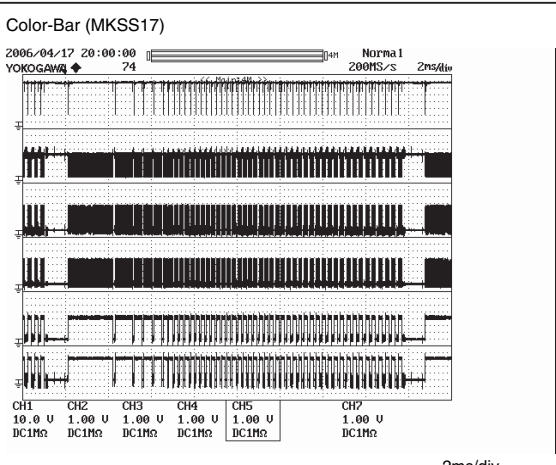
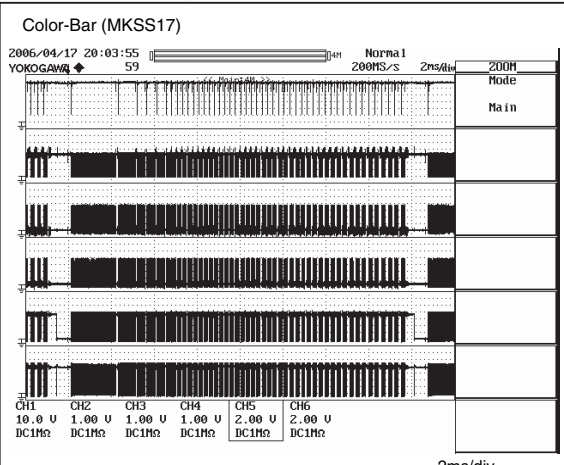
Pin No.	Pin Name	I/O	Function	Remarks
1	V+5.1V_STB	–	Standby 5.1 V power supply	–
2	REM	O	Remote control signal	–
3	LED–	–	LED signal return	–
4	LED_REC	I	LED control for REC	H : LED_ON, L : LED_OFF
5	LED_MDM	I	–	–
6	GND	–	GND	–

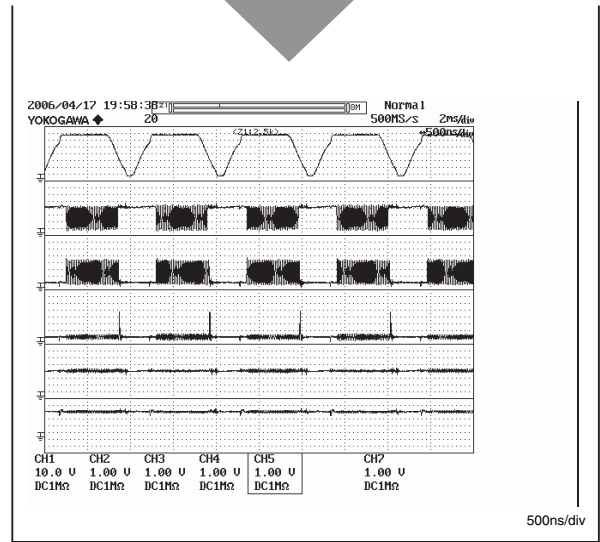
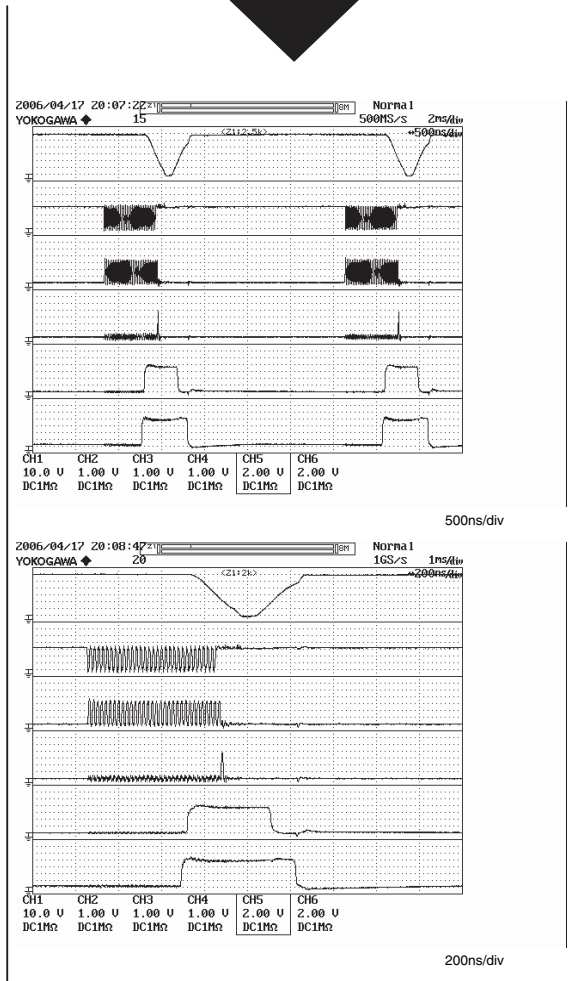
1 2 3 4

4.17 WAVEFORMS

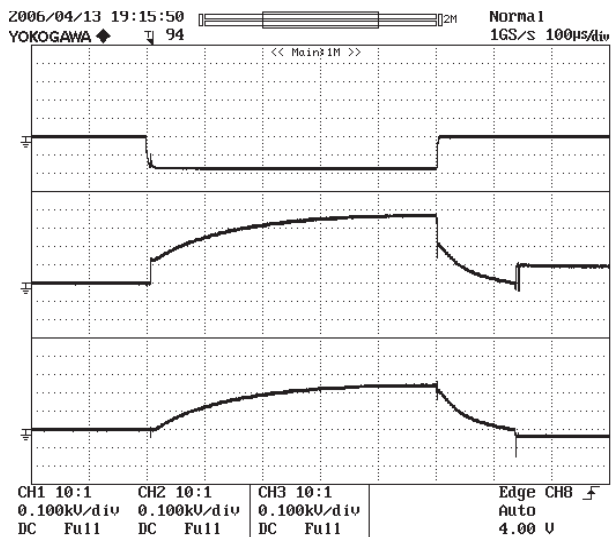
50 ADDRESS L Assy Waveform

Measuring CH	Waveform	Measuring Point	Waveform	Measuring Point
CH1	Resonance waveform (V+ADR)	L1730	Resonance waveform (V+ADR)	L1730
CH2	R ch signal	R1608	R ch signal	R1608
CH3	CLK	R1637	CLK	R1637
CH4	LE	R1621	LE	R1621
CH5	ADR-D	R1720	HBLK	R1615
CH6	ADR-B	R1714	—	—
CH7	—	—	LBLK	R1616

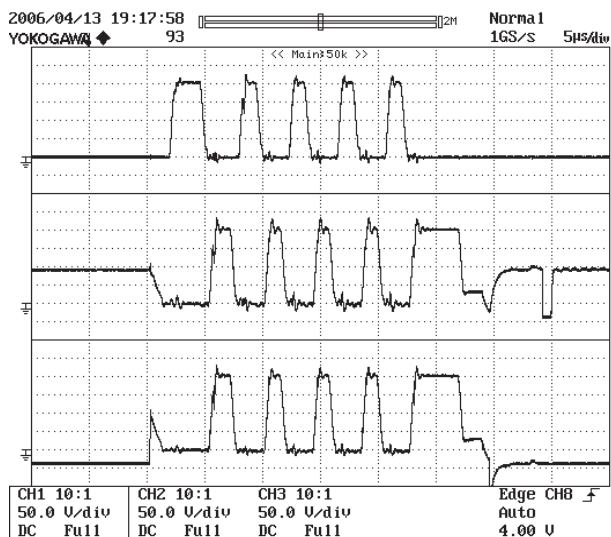




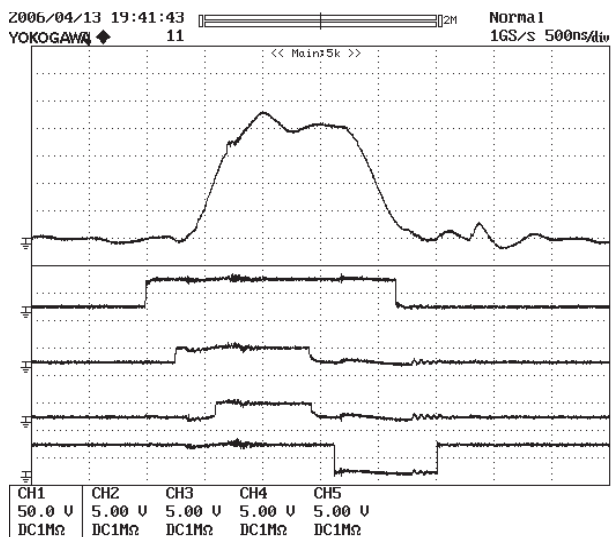
50 X/Y DRIVE Assy Waveform



- ⑨ CH1 R1248 (XPSUS) -K1202(SUSGND)
V:100 V/div H:100 uS/div
(X drive Assy)
- ⑩ CH2 K2901 (ScanOUT) -K2701(SUSGND)
V:100 V/div H:100 uS/div
(Y drive Assy)
- ⑪ CH3 F2207 (YPSUS) -K2203(SUSGND)
V:100 V/div H:100 uS/div
(Y drive Assy)

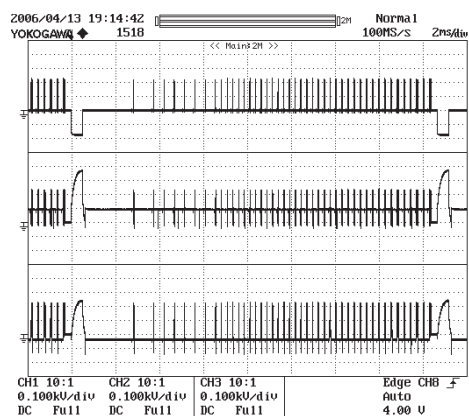


- ⑫ CH1 R1248 (XPSUS) -K1202(SUSGND)
V:50 V/div H:5 uS/div
(X drive Assy)
- ⑬ CH2 K2901 (ScanOUT) -K2701(SUSGND)
V:50 V/div H:5 uS/div
(Y drive Assy)
- ⑭ CH3 F2207 (YPSUS) -K2203(SUSGND)
V:50 V/div H:5 uS/div
(Y drive Assy)

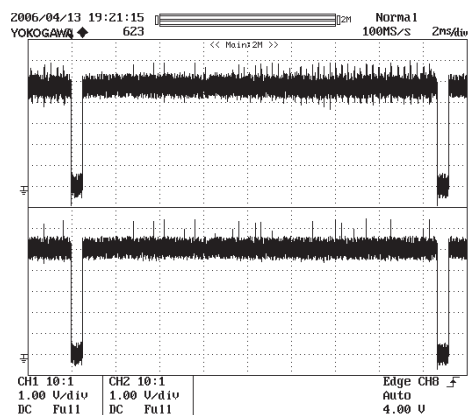


- ⑮ CH1 F2207 (YPSUS) -K2203(SUSGND)
V:100 V/div H:500 nS/div
(Y drive Assy)
- ⑯ CH2 K2021 (YSUS_G) -K2014(GND)
V:5 V/div H:500 nS/div
(Y drive Assy)
- ⑰ CH3 K2009 (YSUS_U) -K2014(GND)
V:5 V/div H:500 nS/div
(Y drive Assy)
- ⑱ CH4 K2013 (YSUS_B) -K2014(GND)
V:5 V/div H:500 nS/div
(Y drive Assy)
- ⑲ CH5 K2010 (YSUS_D) -K2014(GND)
V:5 V/div H:500 nS/div
(Y drive Assy)

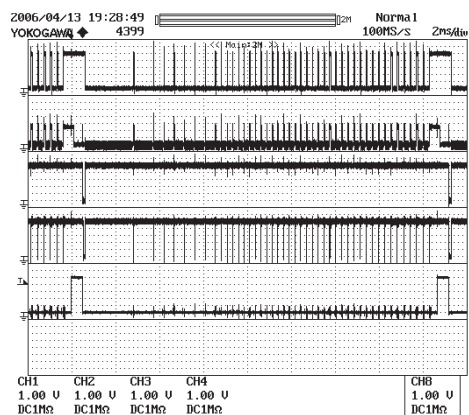
50 X/Y DRIVE Assy Waveform



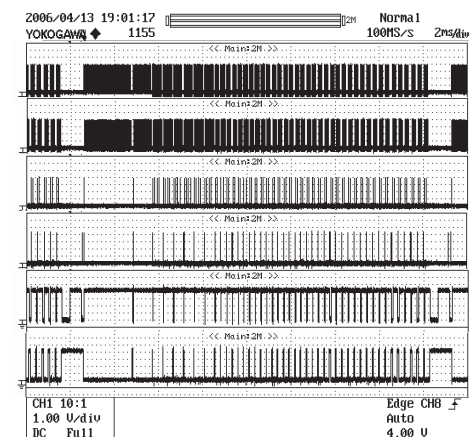
- 20 CH1 R1248 (XPSUS) -K1202(SUSGND)
V:100V/div H:2mS/div
(X drive Assy)
- 21 CH2 K2901 (ScanOUT) -K2701(SUSGND)
V:100V/div H:2mS/div
(Y drive Assy)
- 22 CH3 F2207 (YPSUS) -K2203(SUSGND)
V:100V/div H:2mS/div
(Y drive Assy)



- 23 CH1 K1013 (XSUS_MSK)-K1004(GND)
V:1V/div H:2mS/div
(X drive Assy)
- 24 CH2 K1007 (XNR-D) -K1004(GND)
V:1V/div H:2mS/div
(X drive Assy)



- 25 CH1 K2007 (YNOFS) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 26 CH2 K2007 (YSUS_MSK)-K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 27 CH3 K2008 (YNRST) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 28 CH4 K2006 (SOFT-D) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 29 CH5 K2011 (YPR-U) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)



- 30 CH1 IC2001 18(LE) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 31 CH2 IC2001 17 (CLK) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 32 CH3 IC2001 16 (SI_H) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 33 CH4 IC2001 15 (CLR) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 34 CH5 IC2001 14 (OC2) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)
- 35 CH5 IC2001 13 (OC1) -K2014(GND)
V:1V/div H:2mS/div
(Y drive Assy)

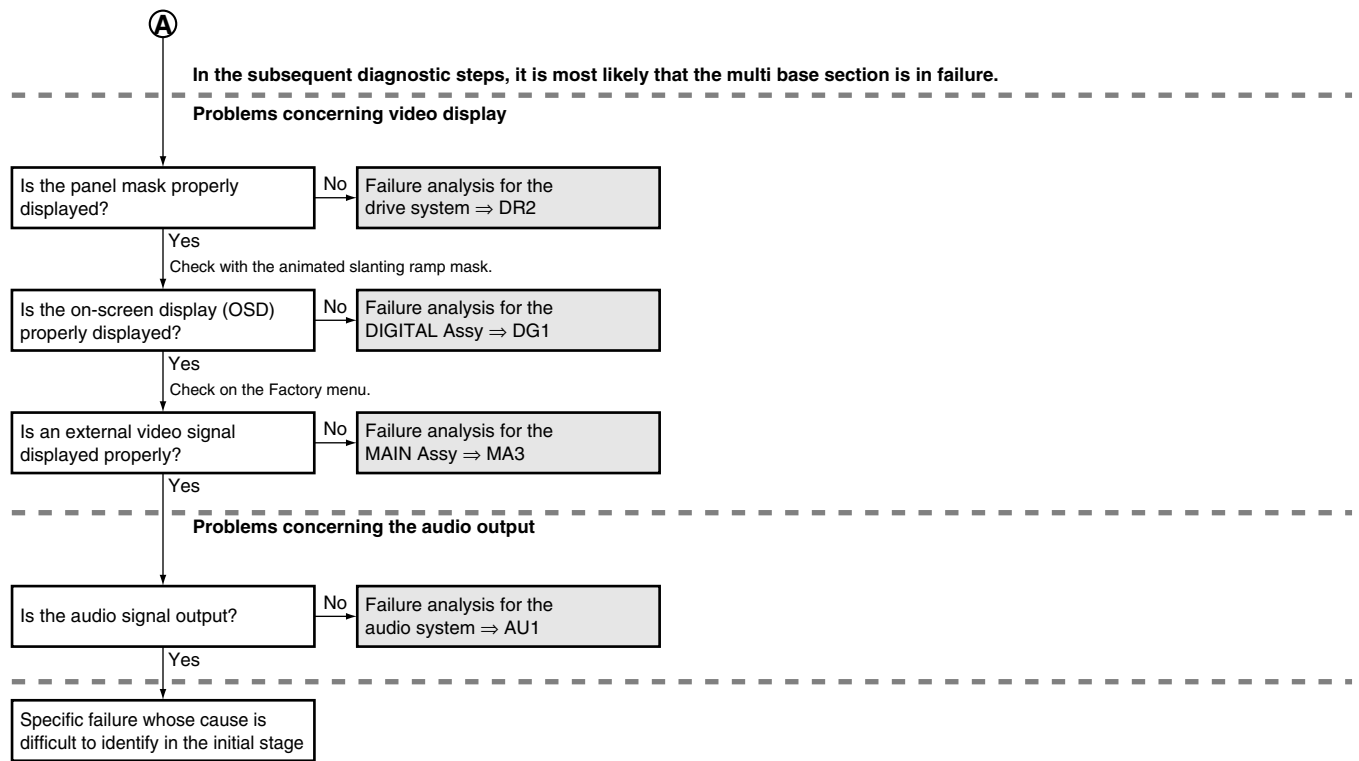
5. DIAGNOSIS INFORMATION

5.1 THE FLOW OF DIAGNOSIS

5.1.1 FLOWCHART OF FAILURE ANALYSIS FOR THE WHOLE UNIT

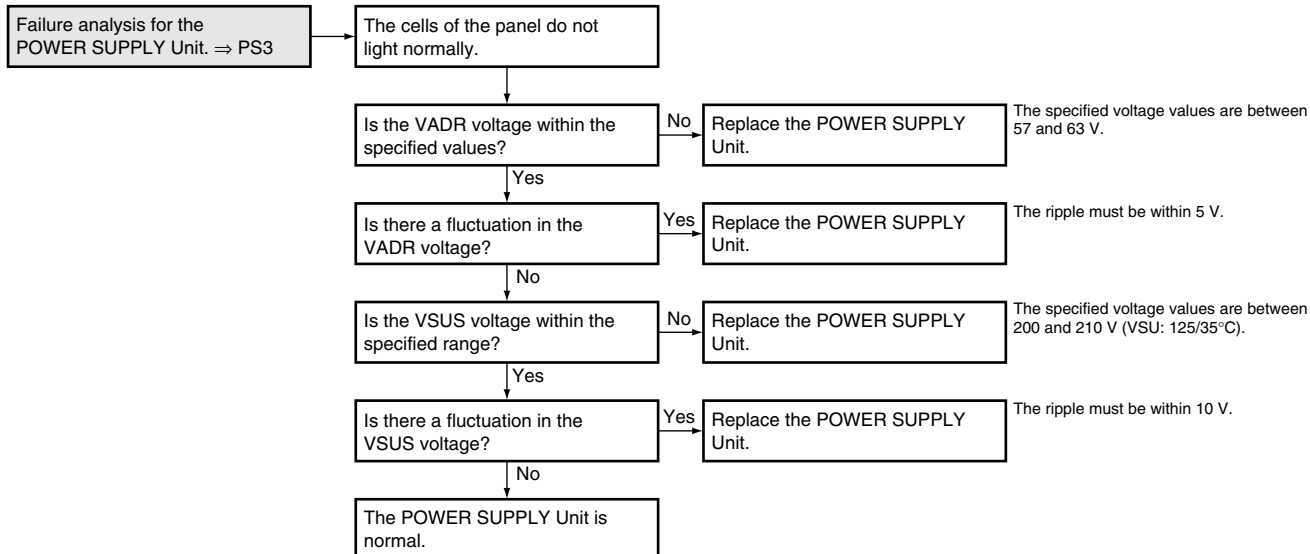
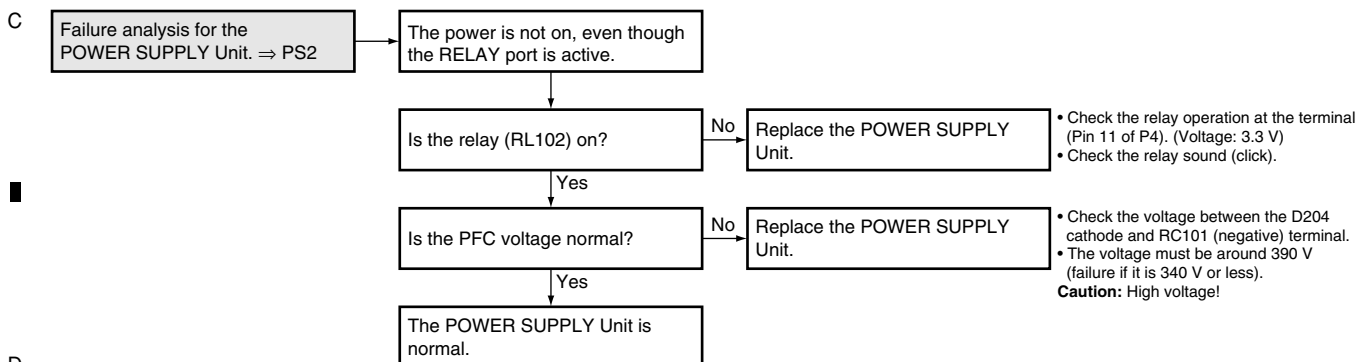
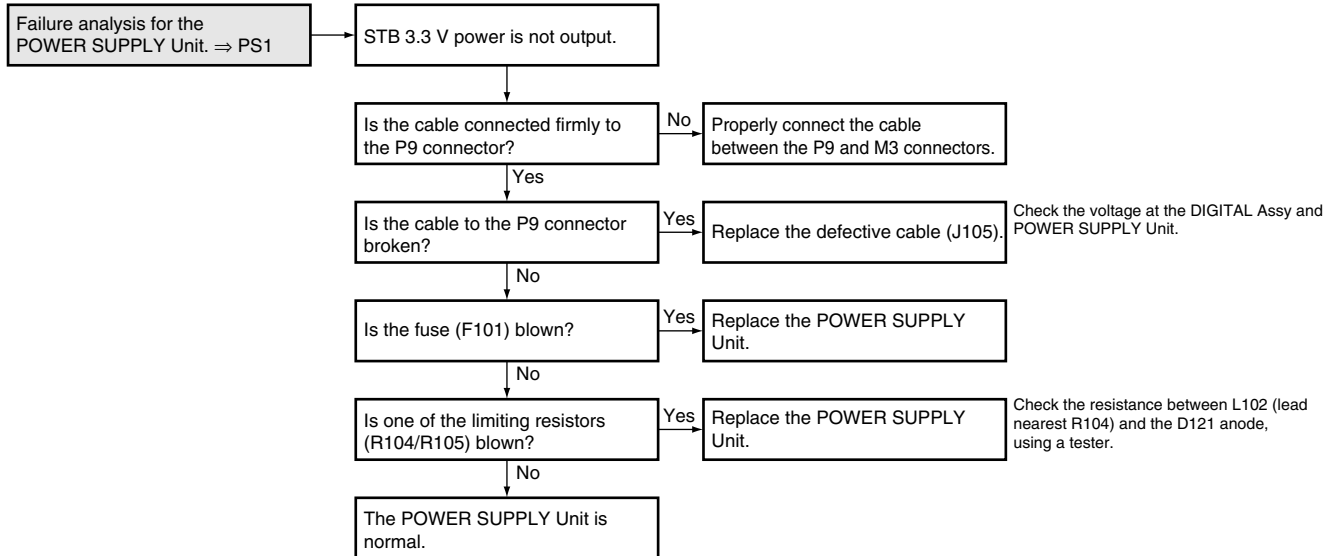
Flowchart of Failure Analysis for The Whole Unit





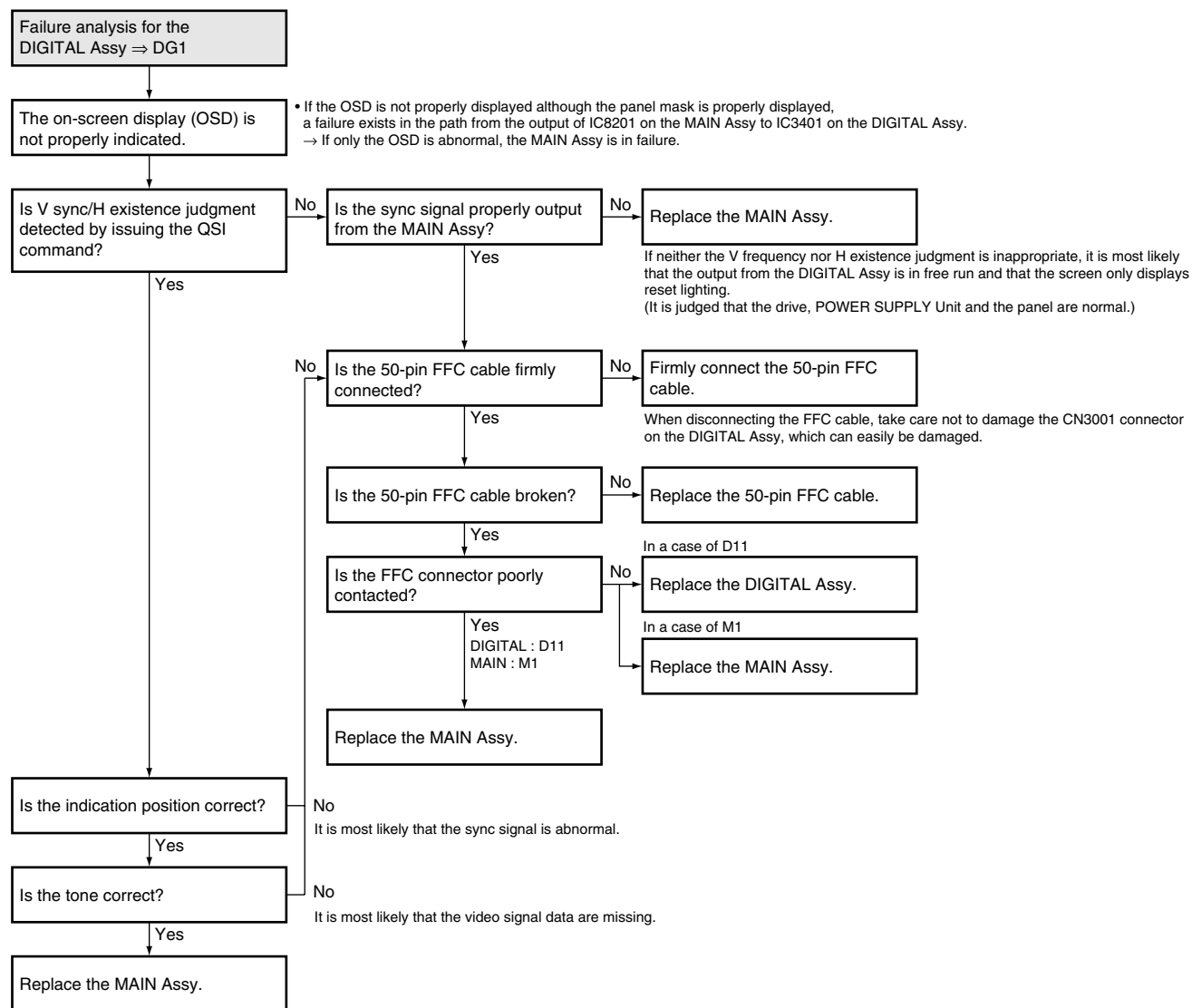
5.1.2 FLOWCHART OF FAILURE ANALYSIS FOR THE POWER SUPPLY UNIT

A Flowchart of Failure Analysis for The POWER SUPPLY Unit



5.1.3 FLOWCHART OF FAILURE ANALYSIS FOR THE DIGITAL ASSY

Flowchart of Failure Analysis for The DIGITAL Assy

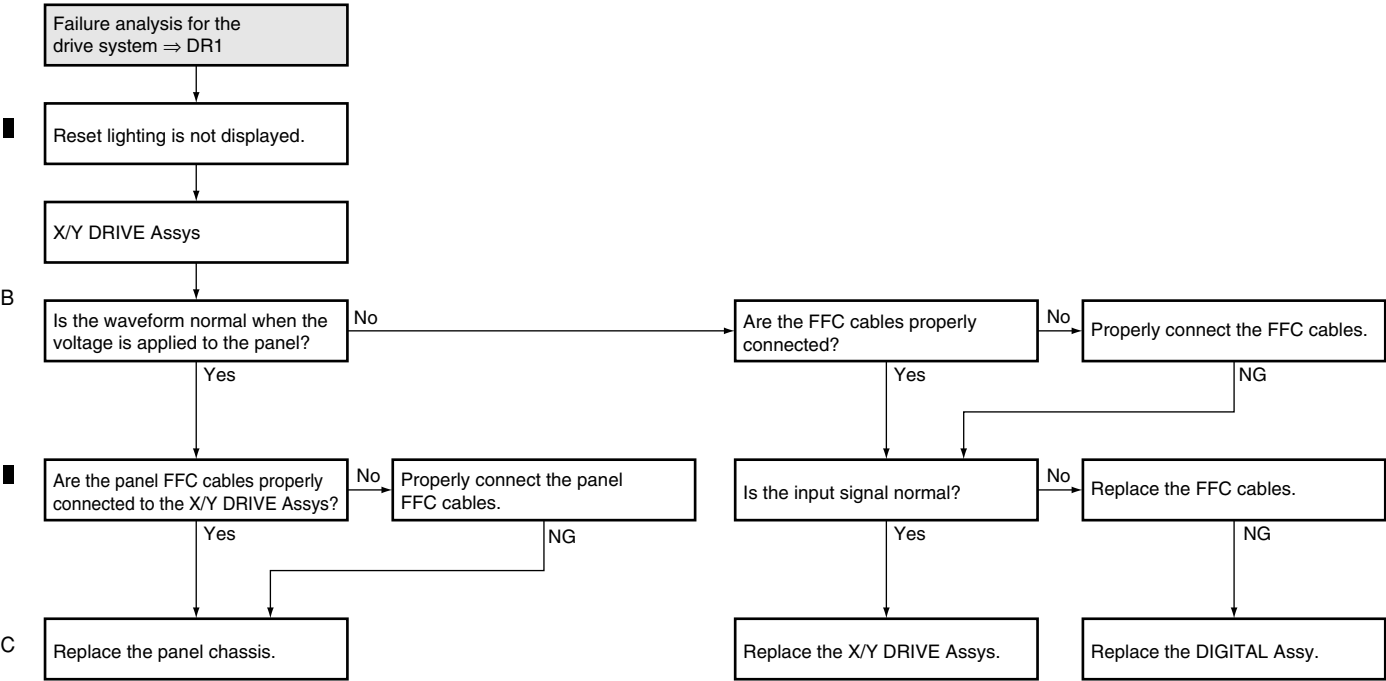


1234

5.1.4 FLOWCHART OF FAILURE ANALYSIS FOR THE DRIVE ASSY

A

Flowchart of Failure Analysis for The Drive Assy





A

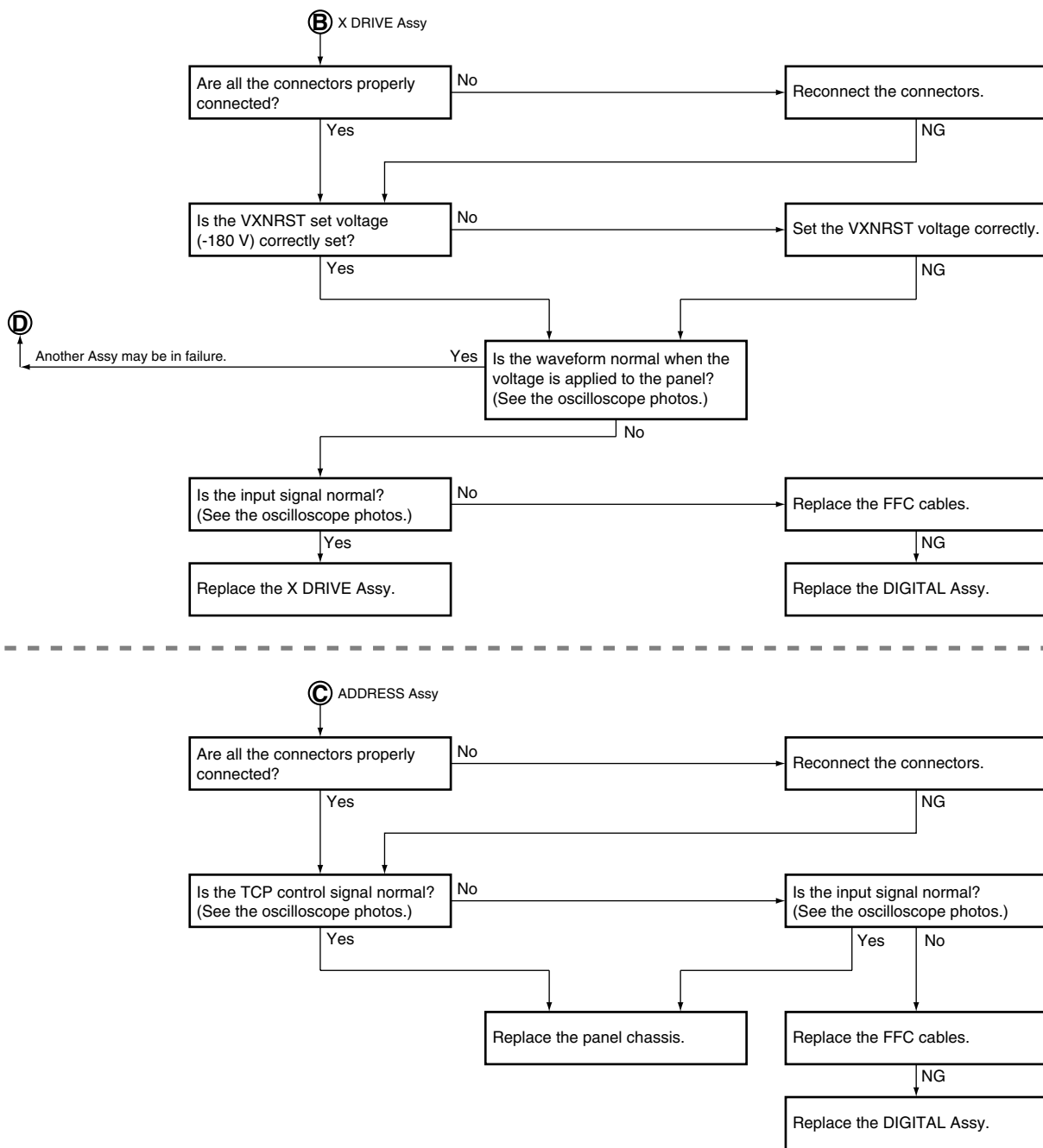
B

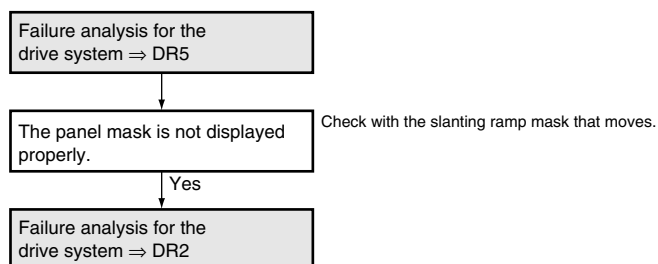
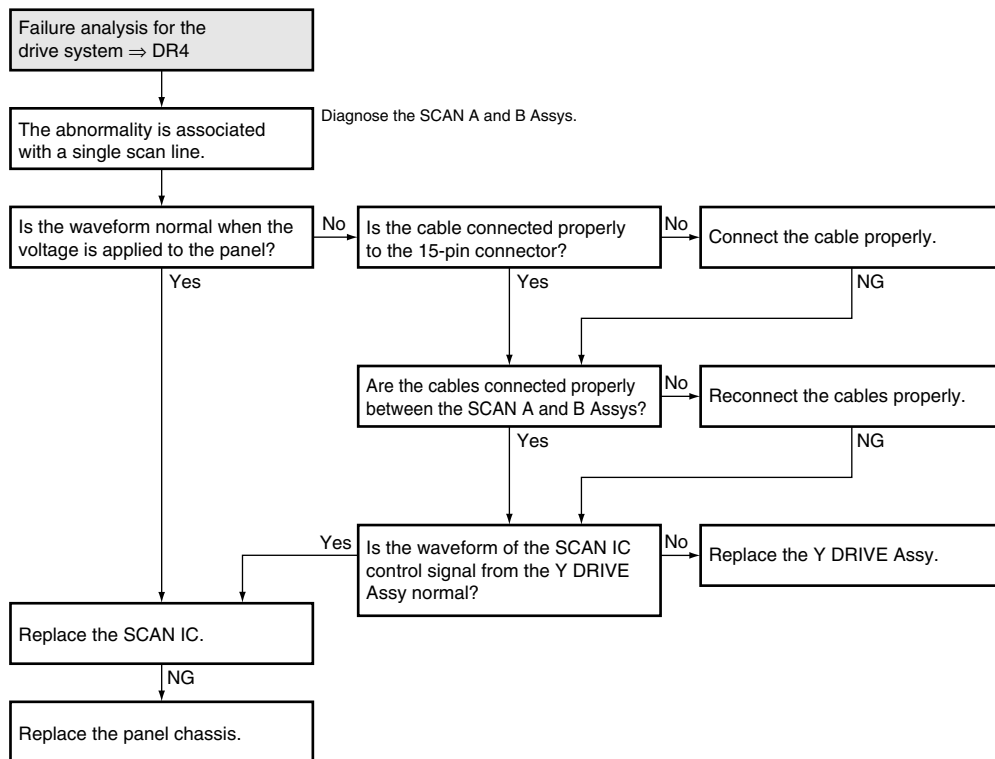
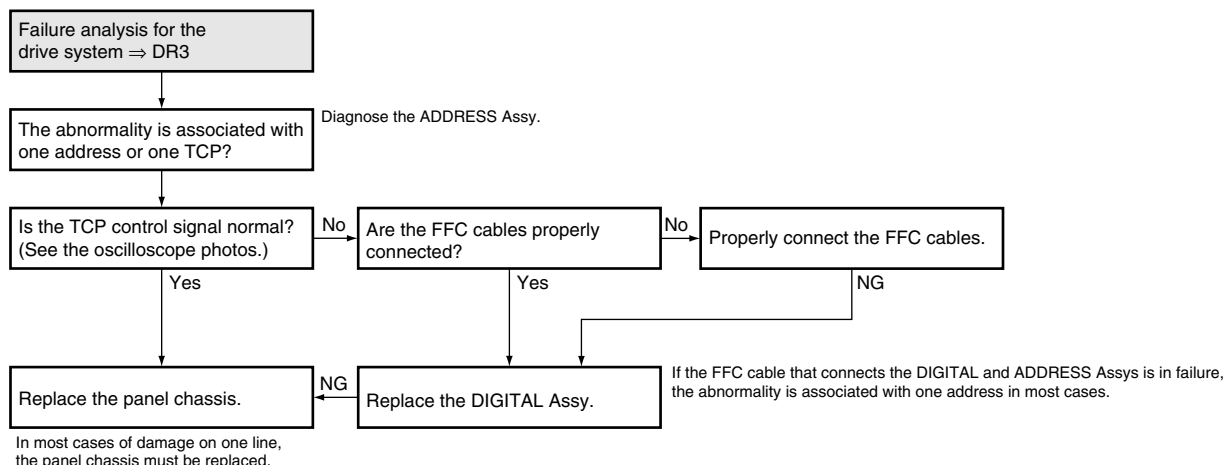
C

D

E

F



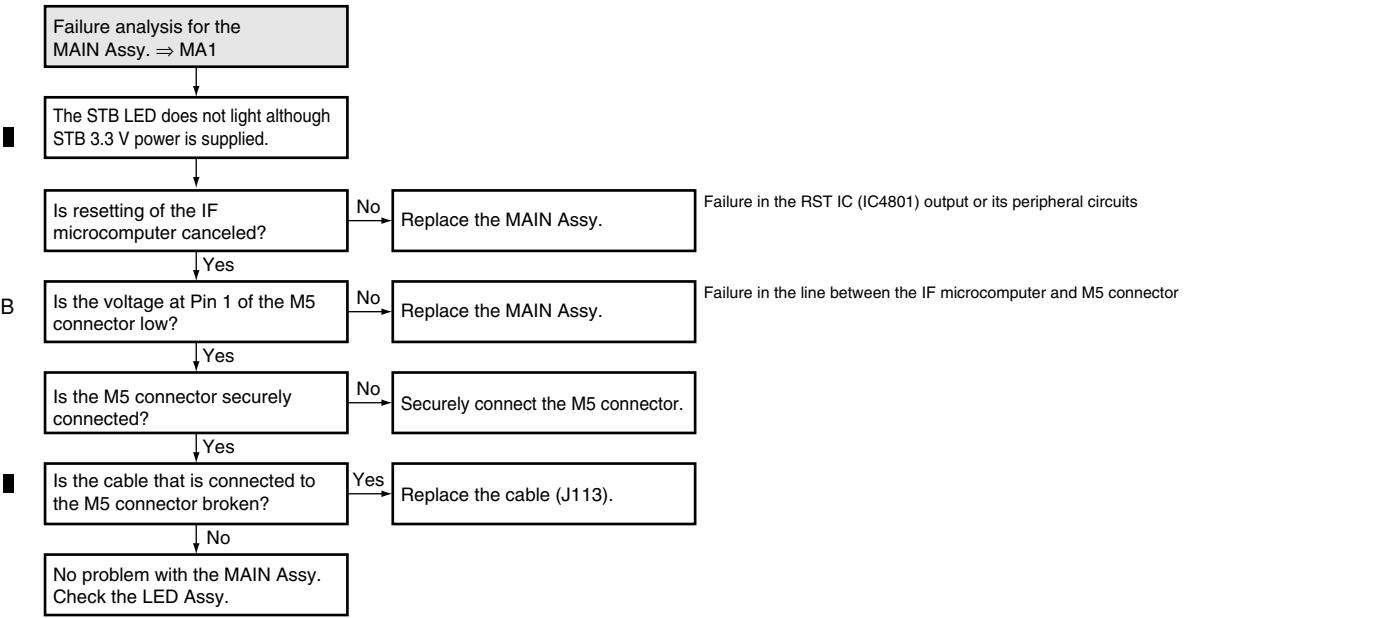


1 2 3 4

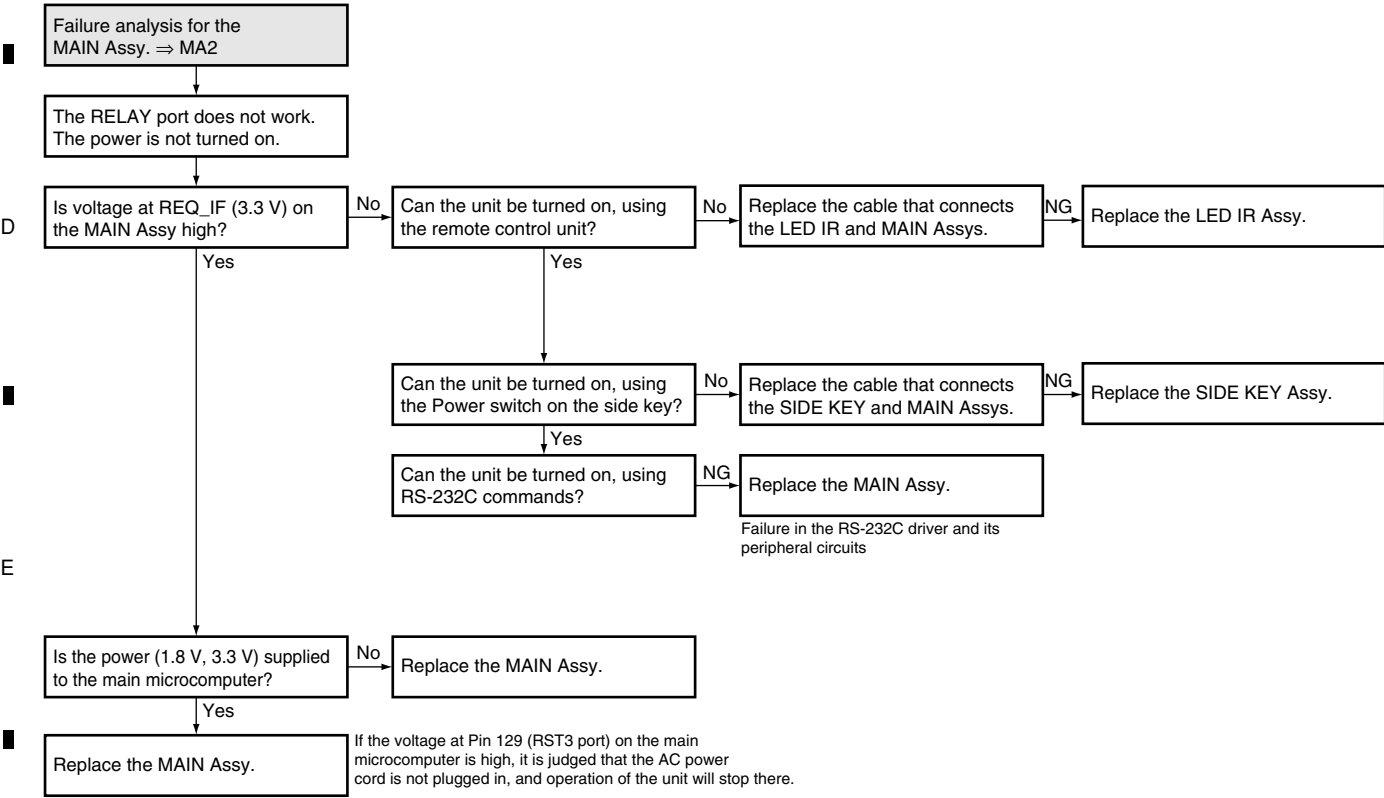
5.1.5 FLOWCHART OF FAILURE ANALYSIS FOR THE MAIN ASSY

A

Flowchart of Failure Analysis for The MAIN Assy



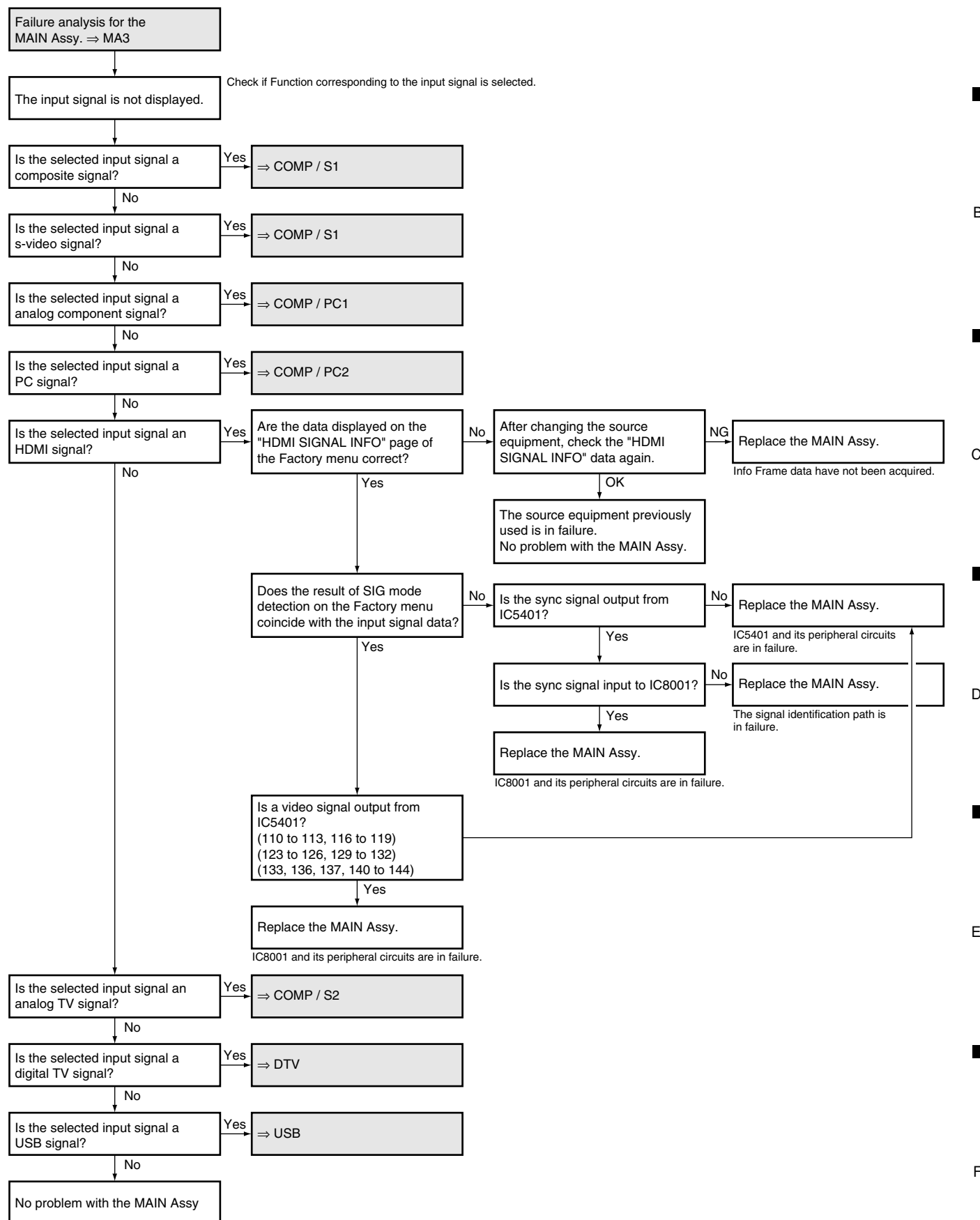
C



F

5.1.6 FLOWCHART OF FAILURE ANALYSIS FOR THE VIDEO SYSTEM

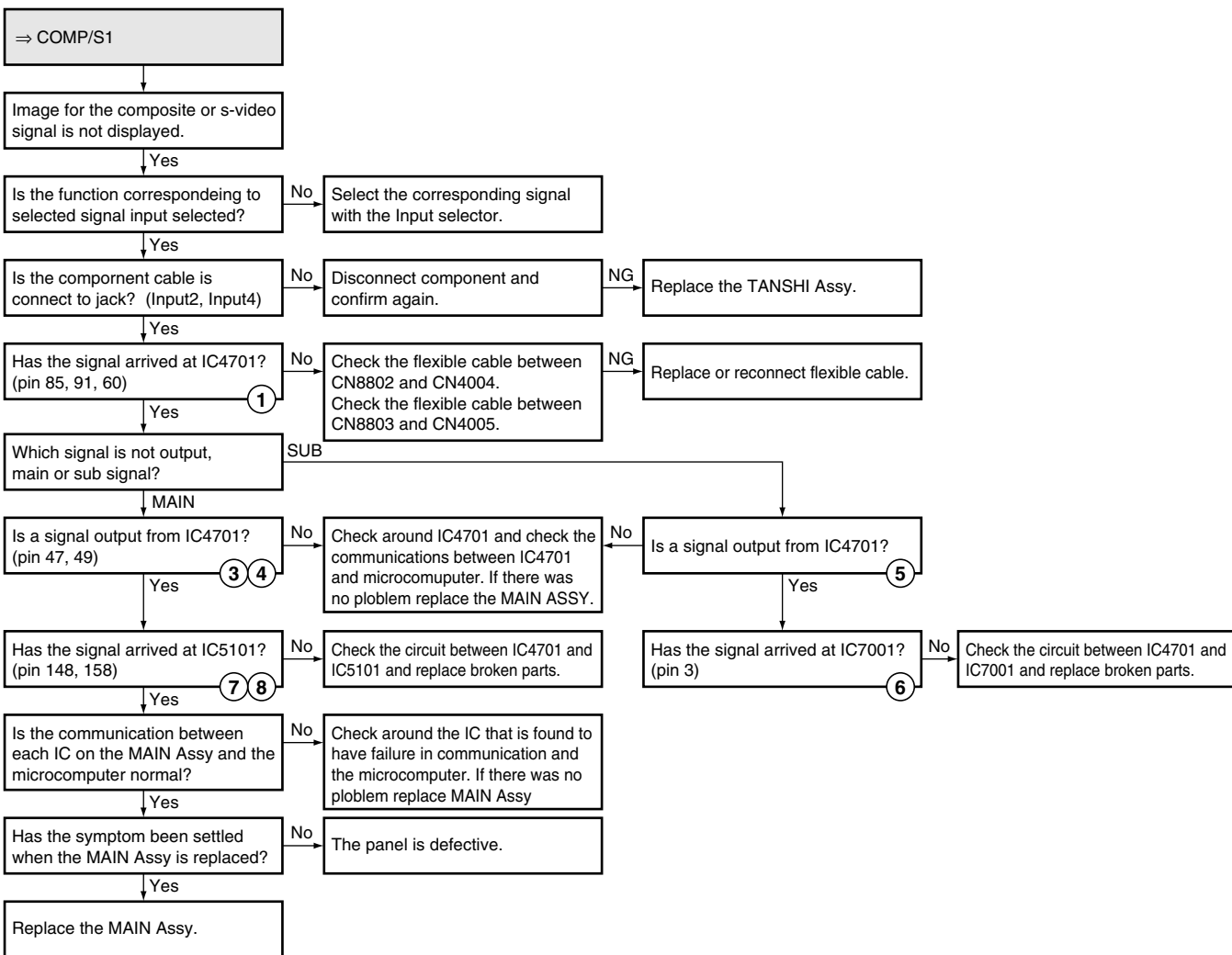
Flowchart of Failure Analysis for The Video System



Flowchart of Failure Analysis for The Video System

A

No video from Composite or S-VIDEO

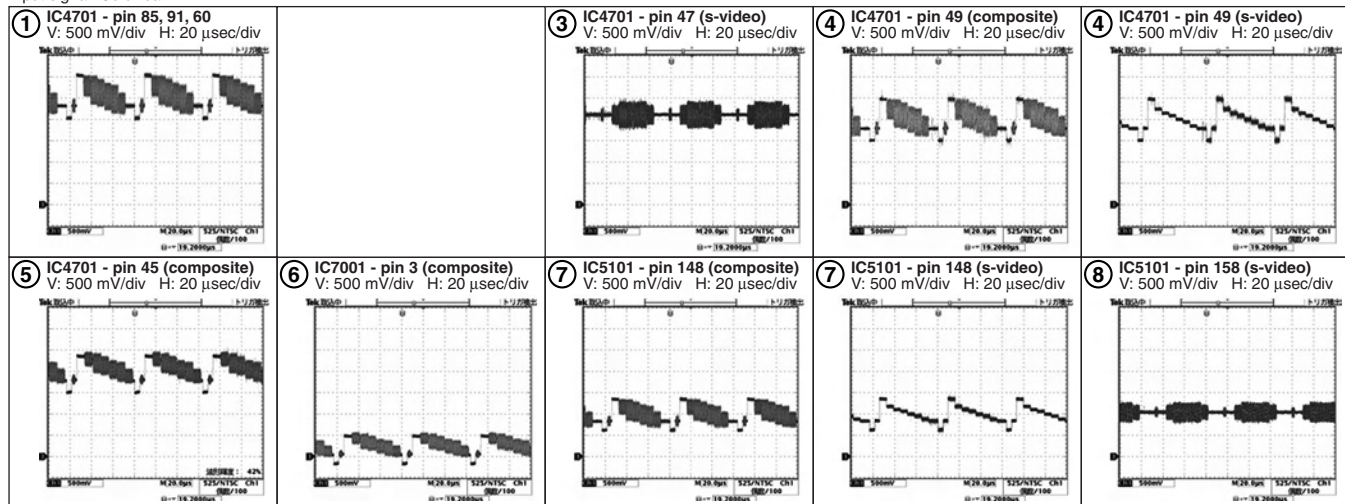


C

D

Waveforms

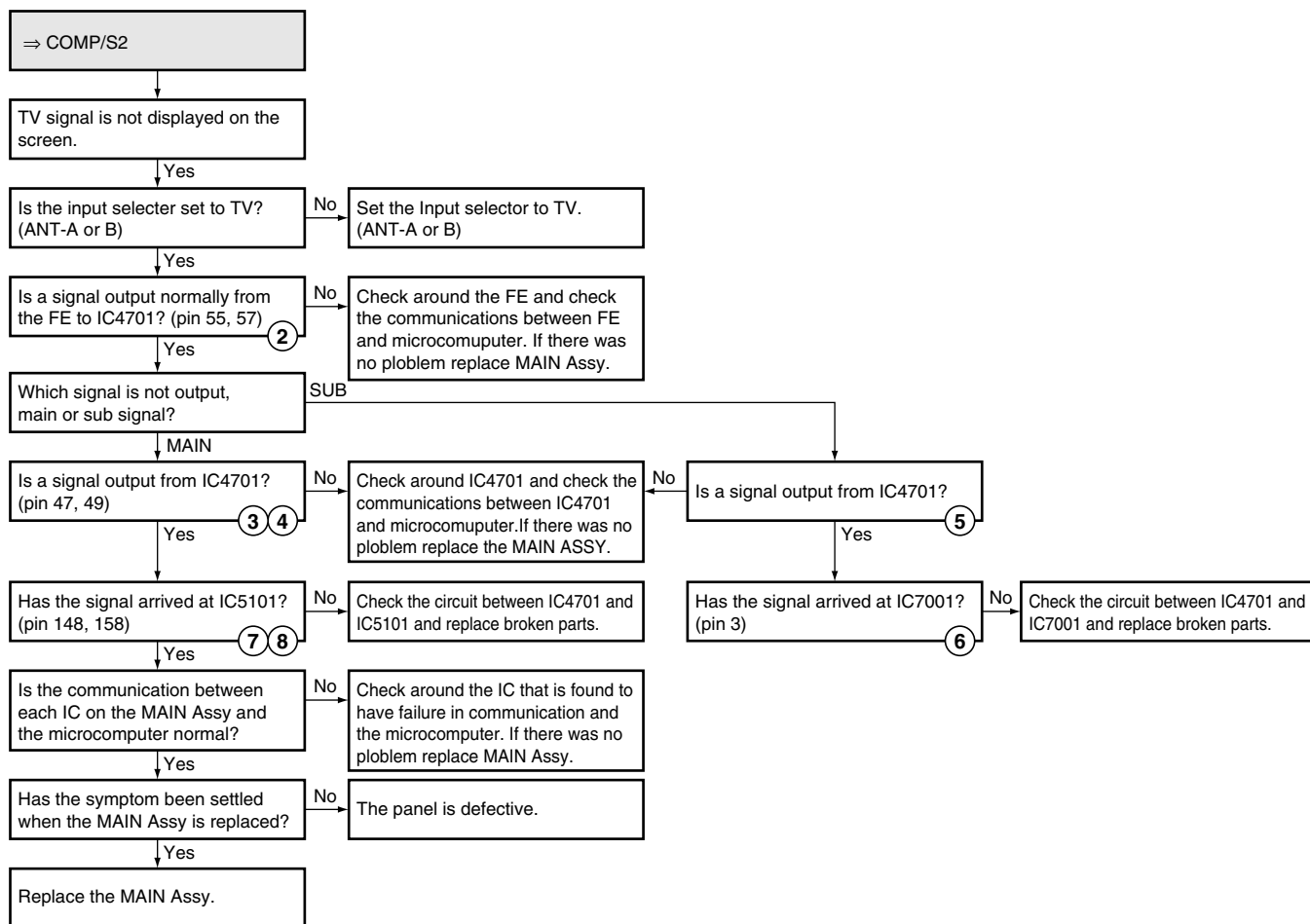
Input signal: Color-bar



E

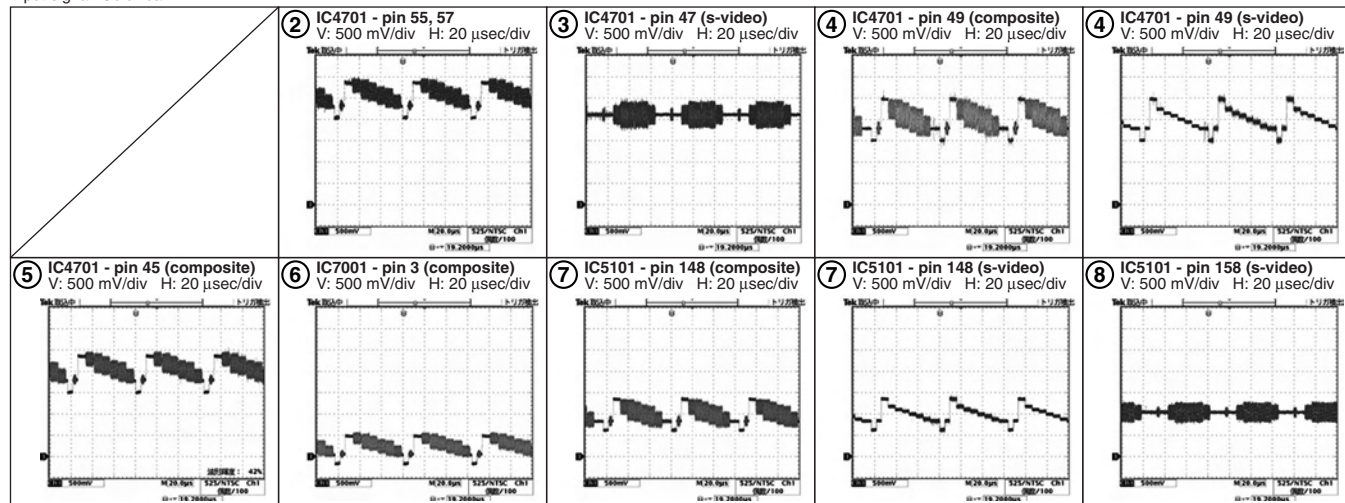
F

No video from TV signal

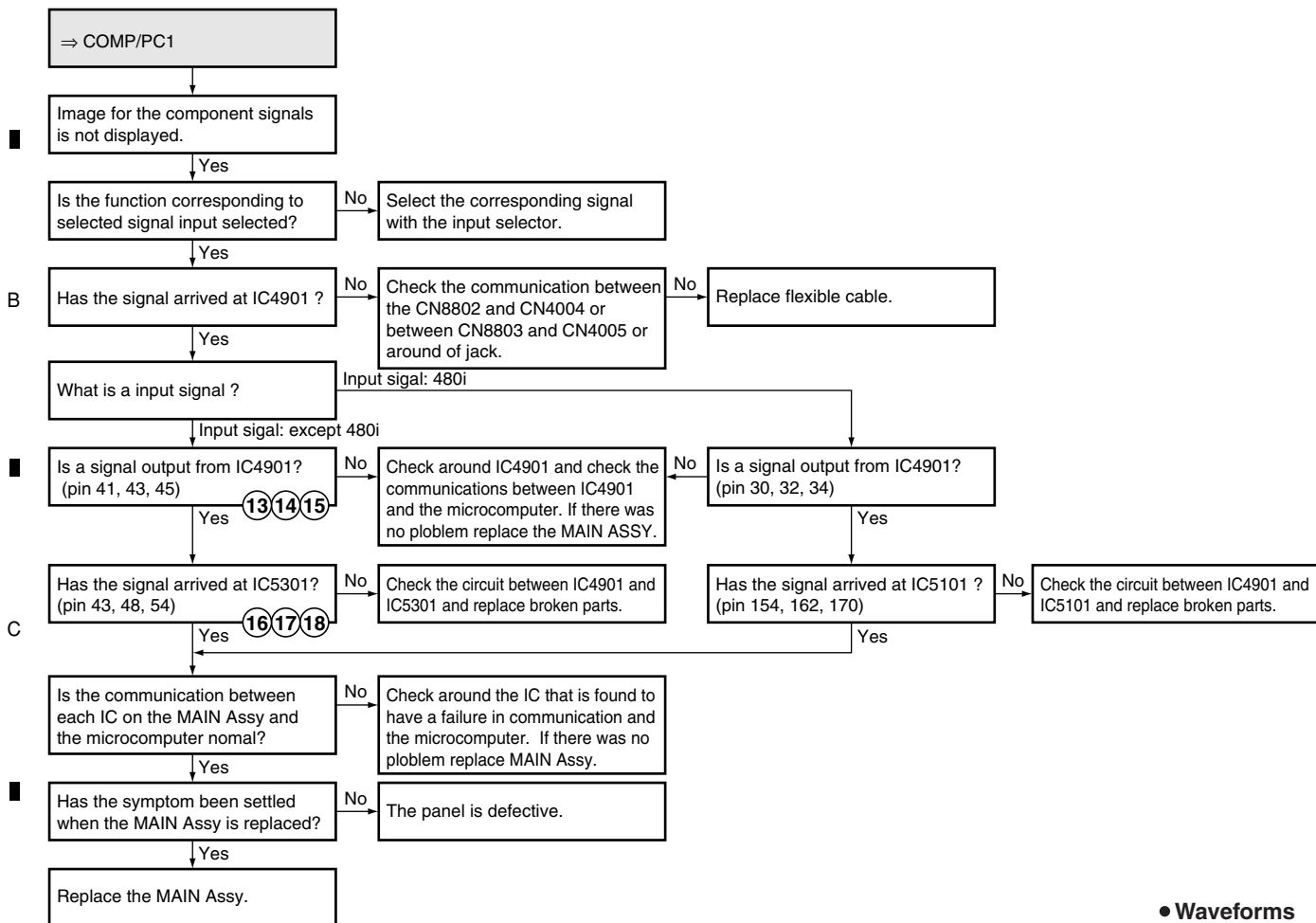


Waveforms

Input signal: Color-bar



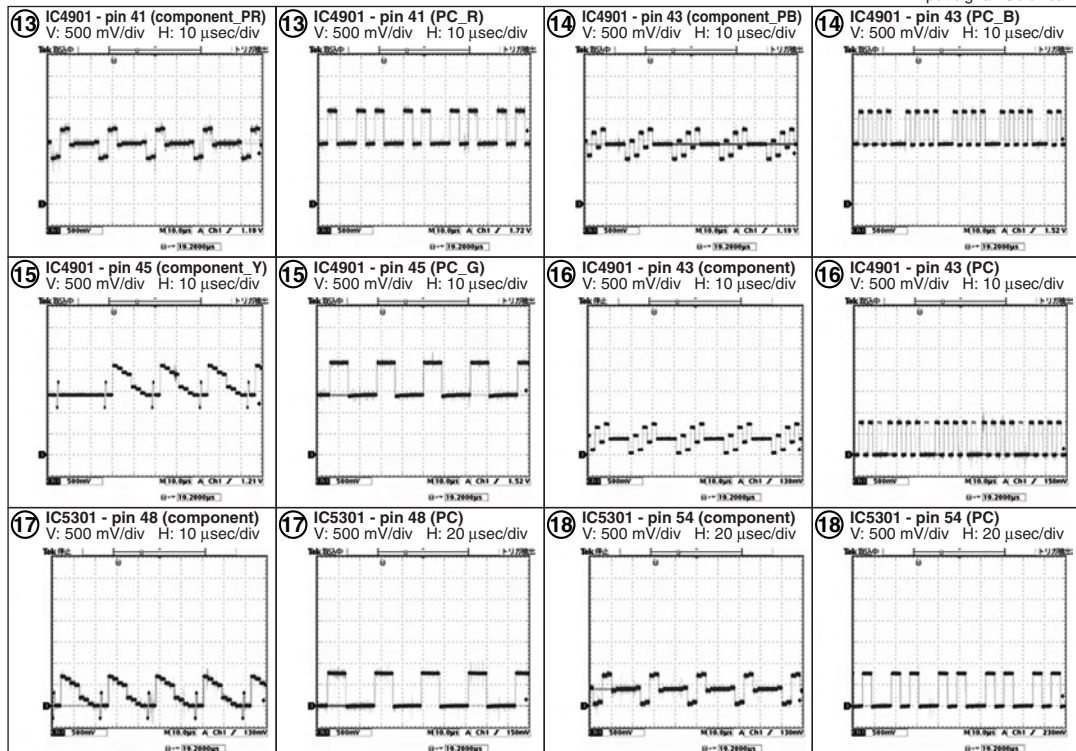
A No video from component



D

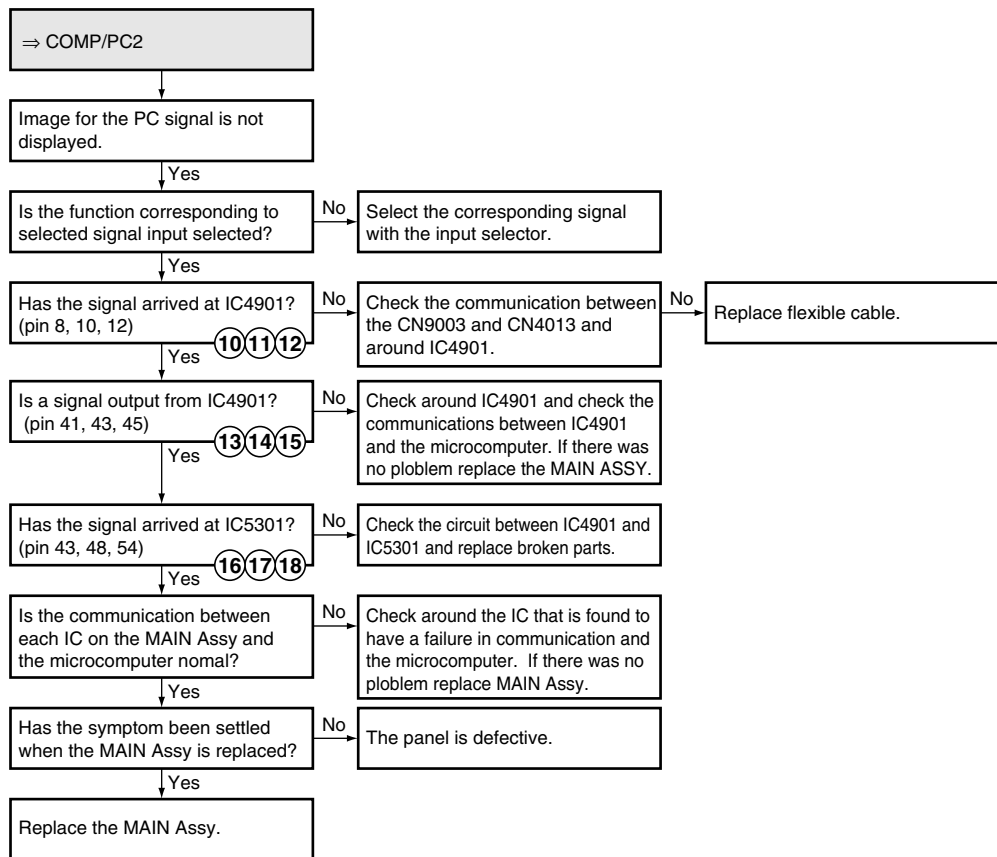
Waveforms

Input signal: Color-bar



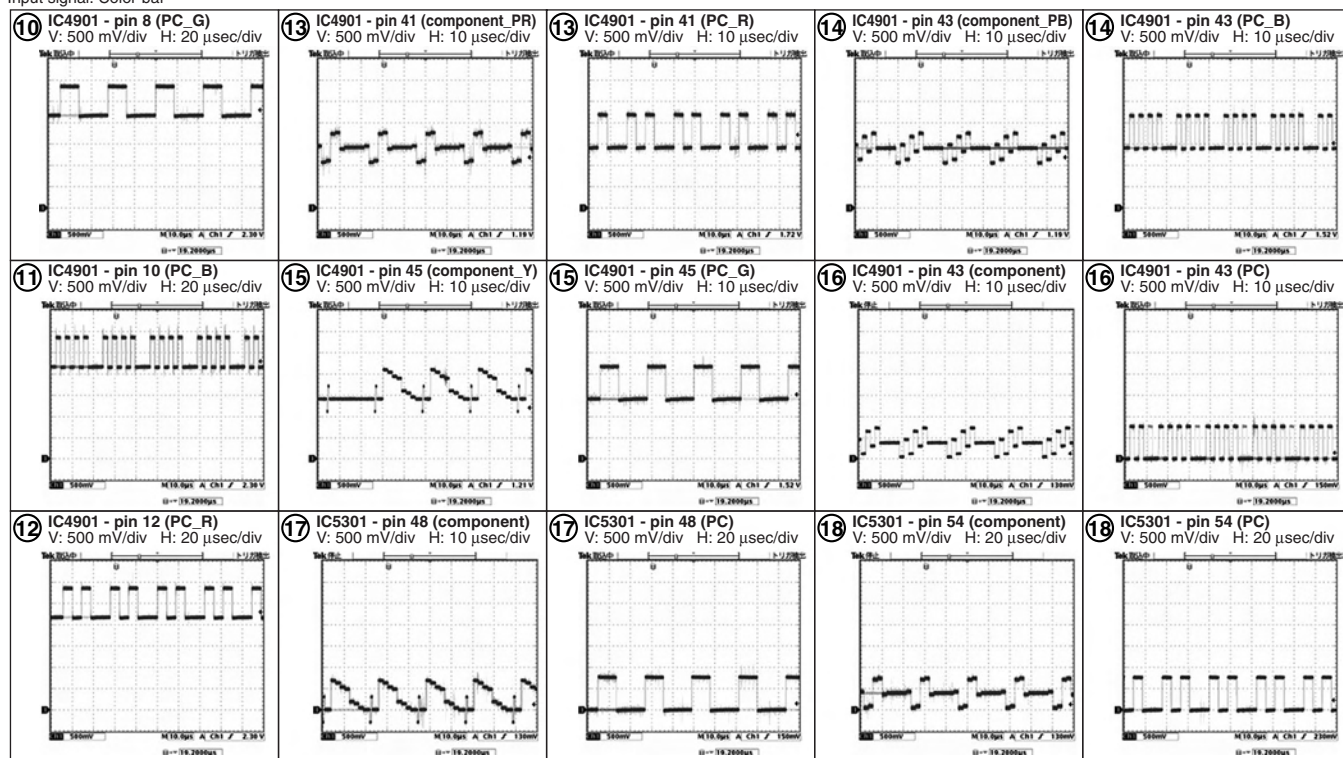
F

No video from PC

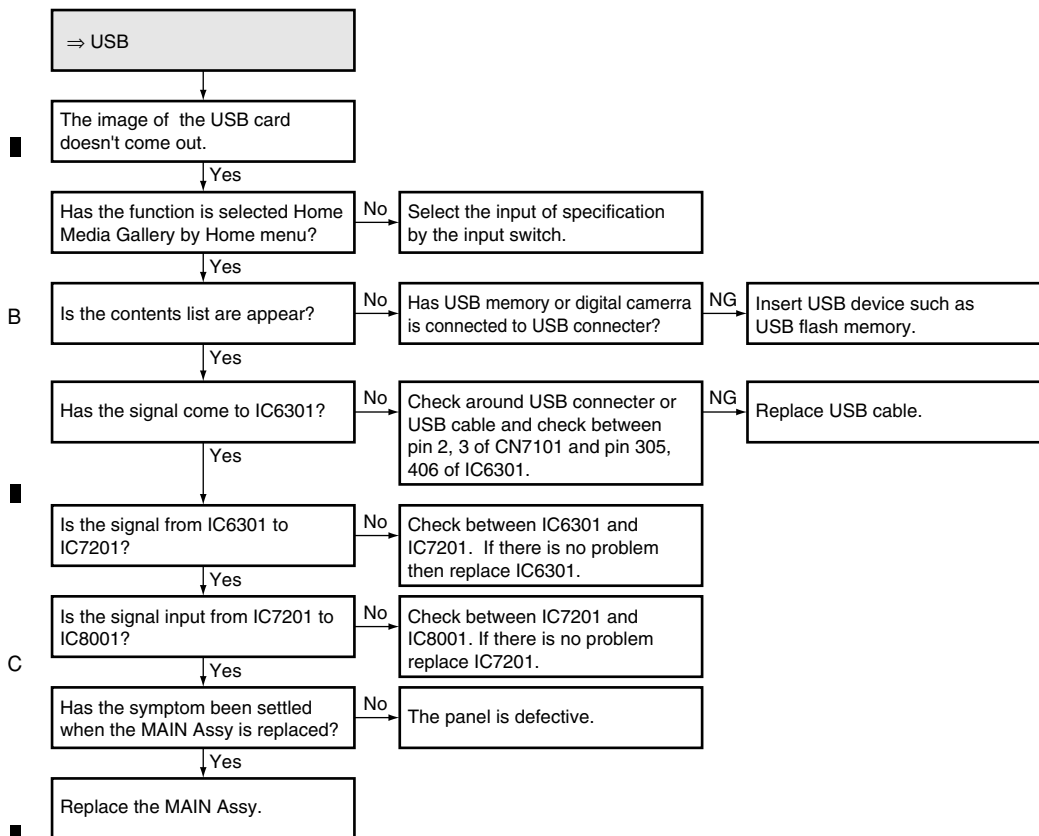


● Waveforms

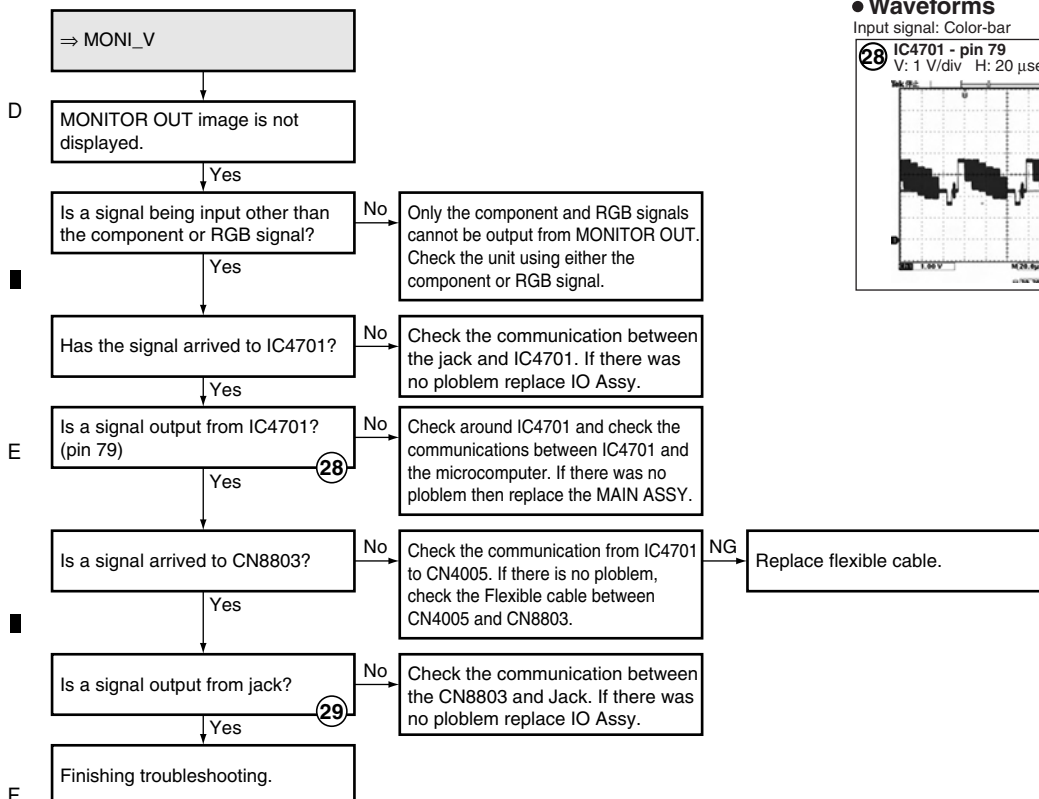
Input signal: Color-bar



A No video from USB input

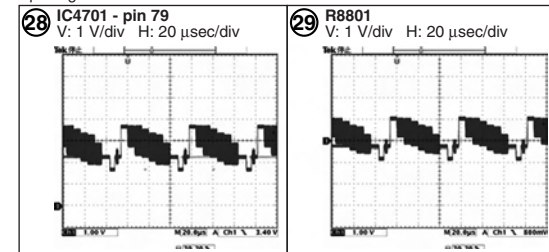


No monitor output



Waveforms

Input signal: Color-bar



Flowchart of Failure Analysis for The Audio System

No audio from monitor out

⇒ MONI_A

The sound is not emitted audio out.

Yes

Is a signal output from IC4701?
(pin 33, 34)

Yes

No
Check the surrounding of IC4701 and each input signal. If there was no problem, replace the MAIN ASSY.

Has the signal arrived at CN4005?

No

Check the communication between IC4701 and CN4005.

NG

Replace the MAIN Assy.

Yes

Is a signal output from CN8803?

No

Check the Flexible cable between CN4005 and CN8803.

NG

Replace or reconnect flexible cable.

Yes

Has the signal come to TP8825 or TP8826?

No

Check the contact between the CN8803 and R8886.
Check the contact between the CN8803 and R8887.

NG

Replace the TANSHI Assy.

Yes

Is a signal output from jack?

No

Check the communication between the CN8803 and Jack.
If there was no problem, replace IO Assy.

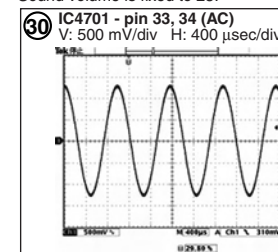
NG

Replace the TANSHI Assy.

Finishing troubleshooting.

Waveforms

Input signal: 1kHz
Sound volume is fixed to 25.



No audio output from subwoofer

⇒ SUB-W

Has the sound been emitted from the Subwoofer?

No

Cancel muting then check again.

No

Cancel muting then check again.

Yes

Is the volume set to 0?

No

Raise the volume then check again.

Is a signal output from IC4701?
(pin 31, 32)

Yes

No
Check the around of IC4701 and each input signal. If there was no problem, replace the MAIN ASSY.

Is a signal output from IC4704?
(pin 1, 7)

Yes

No
Check around IC4704.

NG

Replace the MAIN Assy.

Has the signal arrived at CN4005?

No

Check the communication between IC4704 to CN4005.

NG

Replace the MAIN Assy.

Yes

Is a signal output from CN8803?

No

Check the Flexible cable between CN4005 and CN8803.

NG

Replace or reconnect flexible cable.

Yes

Has the signal come to TP8843?

No

Check the contact between the CN8803 and R8892.

NG

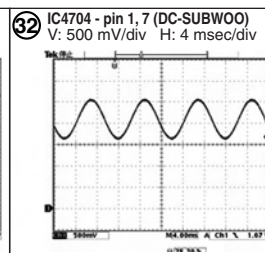
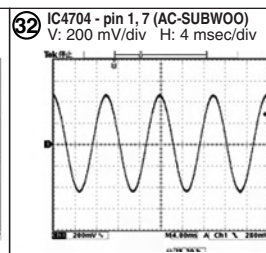
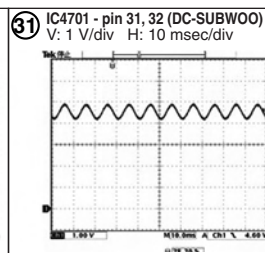
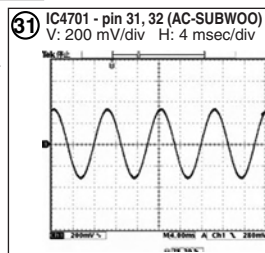
Replace the TANSHI Assy.

Yes

Check the around of pin Jack.

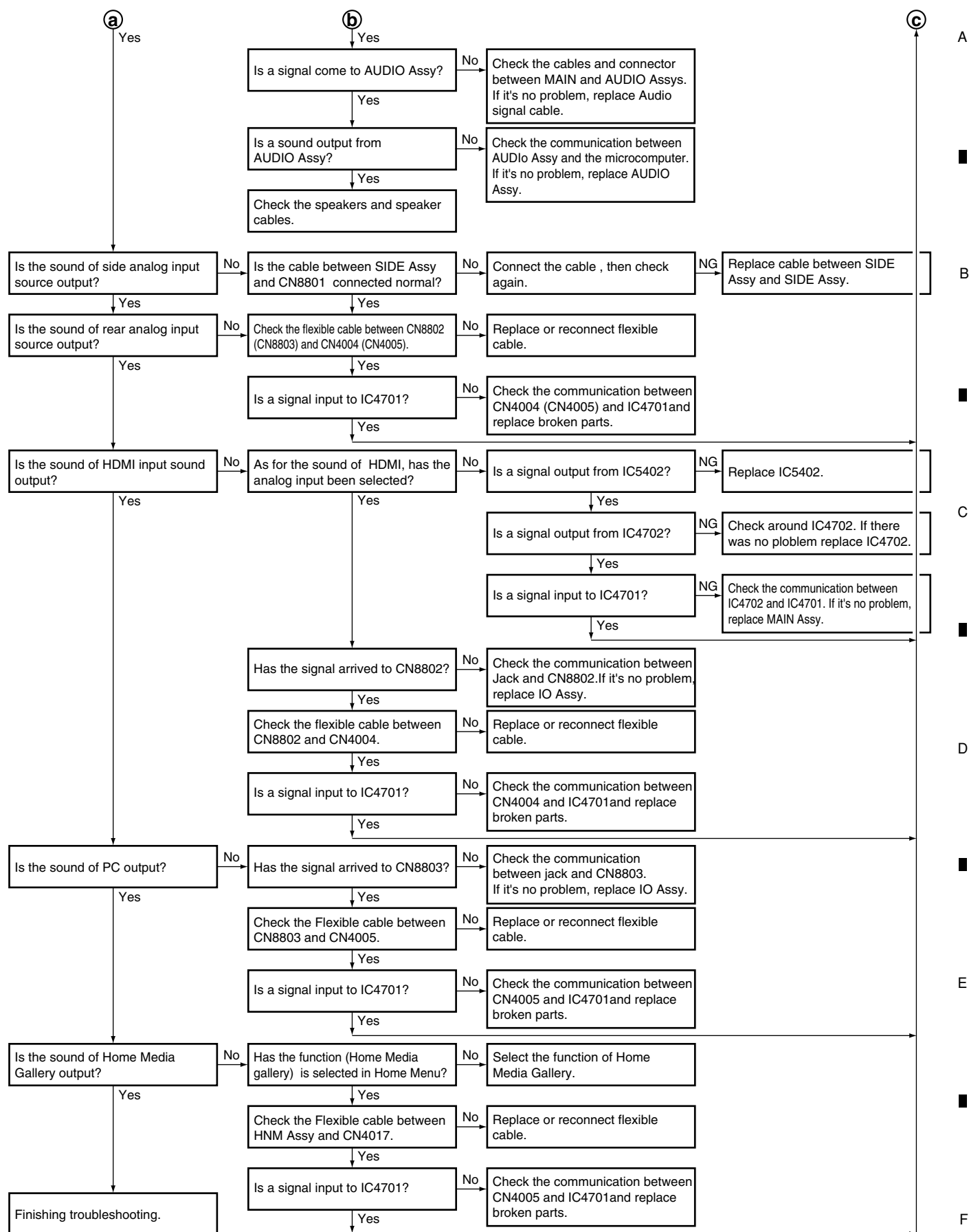
Waveforms

Input signal: 100 Hz
Sound volume is fixed to 25.



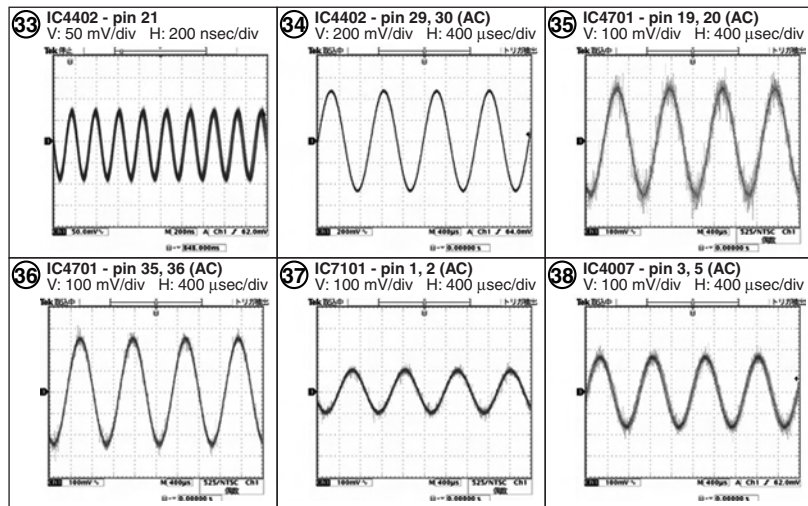
F





● Waveforms

Input signal: 1kHz
Sound volume is fixed to 25.



DTV doesn't work

⇒ DTV

DTV (Digital Terrestrial Video)
doesn't operate.

Yes

Is the power-supply voltage of
CN4002 normal?

No
Check between CN4002 and
P8 (POWER SUPPLY Unit).

Yes

When power ON, is RESET_DT
(IC8401 - pin 159) Low after
D+3.3V standing up?

No
Check around IC6902.

Yes

Do you communicate by TXD_DT
(IC8401: 103) and RXDDT
(IC8401: 102)?

No
Check between IC8401 (pin 102,
103) and IC6301 (pin 305, 406).
Exchange IC6301.

NG
Replace the MAIN Assy.

Yes

Is the signal from IC6301 to
IC7201?

No
Check between IC6301 and
IC7201. Exchange IC6301 if there
is no problem.

Yes

Is the signal input from IC7201 to
IC8001?

No
Check between IC7201 and
IC8001. Exchange IC6301 if there
is no problem.

Yes

Has the symptom been settled
when the MAIN Assy is replaced?

No
The panel is defective.

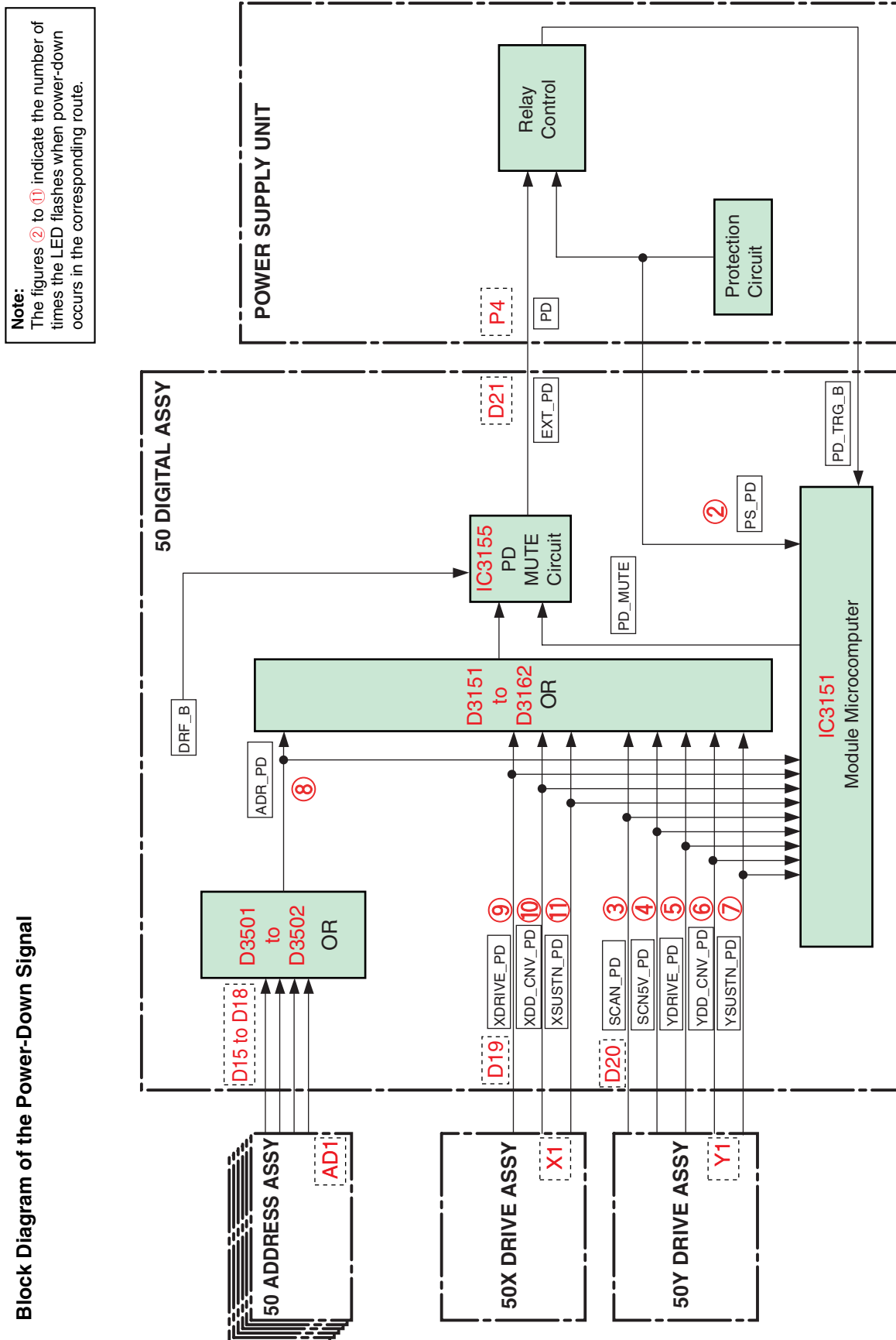
Yes

Finishing troubleshooting.

5.2 POWER DOWN

5.2.1 BLOCK DIAGRAM OF THE POWER-DOWN SIGNAL

■ Block Diagram of the Power-Down Signal



5.2.2 POWER DOWN OF FAILURE ANALYSIS

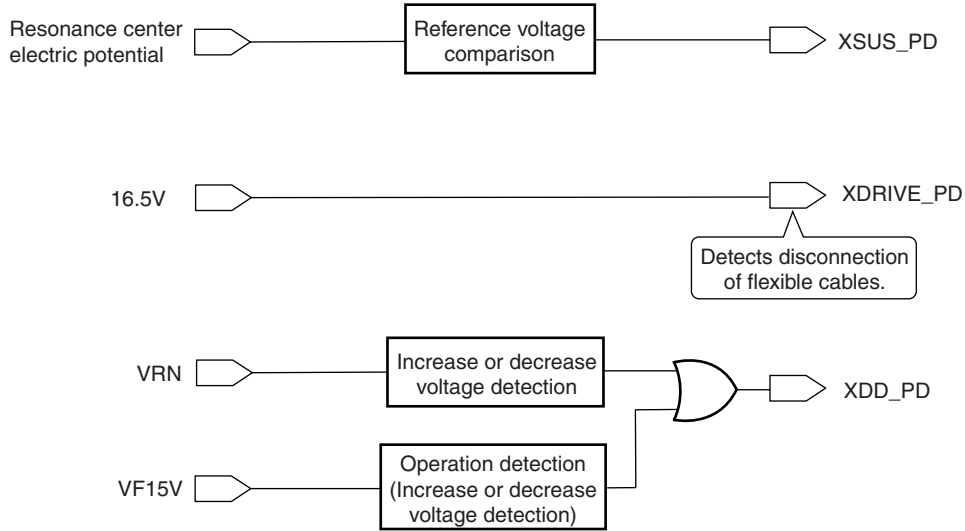
Prediction of failure symptoms when a PD (power-down) is generated

LED Flashing Count	PD Circuit	Checkpoint	Main Cause
2	Power supply PD	POWER SUPPLY Unit	Failure in the POWER SUPPLY Unit
3	SCAN PD	50 SCAN A, B Assy	SCAN IC is damaged (short-circuiting between VH and GNDH)
		50Y DRIVE Assy	Connectors disconnected between the POWER SUPPLY Unit and the Y DRIVE Assy Connectors disconnected between the DIGITAL and the Y DRIVE Assys Failure in the VH power
4	IC5V PD	50SCAN A, B Assy	SCAN IC is damaged (short-circuiting between IC5V and GNDH) Disconnection of the scan-bridge (15-pin) connector
		50Y DRIVE Assy	Failure in the photo coupler Abnormality in the IC5V DC/DC converter
5	Y-DRIVE PD	50Y DRIVE Assy	Abnormality in the 16.5 V power
6	Y DCDC PD	50Y DRIVE Assy	Abnormality in the VOFS DC/DC converter
			Abnormality in the VPRST DC/DC converter
			Abnormality in VC_15V DC/DC converter
7	Y SUS PD	50Y DRIVE Assy	Abnormality in the DK module
			Abnormality in the control signal line
8	Address PD	50 ADDRESS Assy	Short-circuiting of Vadr TCP damaged
9	X-DRIVE PD	50X DRIVE Assy	Connectors disconnected between the DIGITAL and the X DRIVE Assys
			Abnormality in the 16.5 V power
10	X DCDC PD	50X DRIVE Assy	Abnormality in VC_15V power
			Abnormality in VXNRST power
11	X SUS PD	50X DRIVE Assy	Abnormality in the DK module
			Abnormality in the control signal line
			Connectors disconnected between the POWER SUPPLY Unit and the X DRIVE Assy

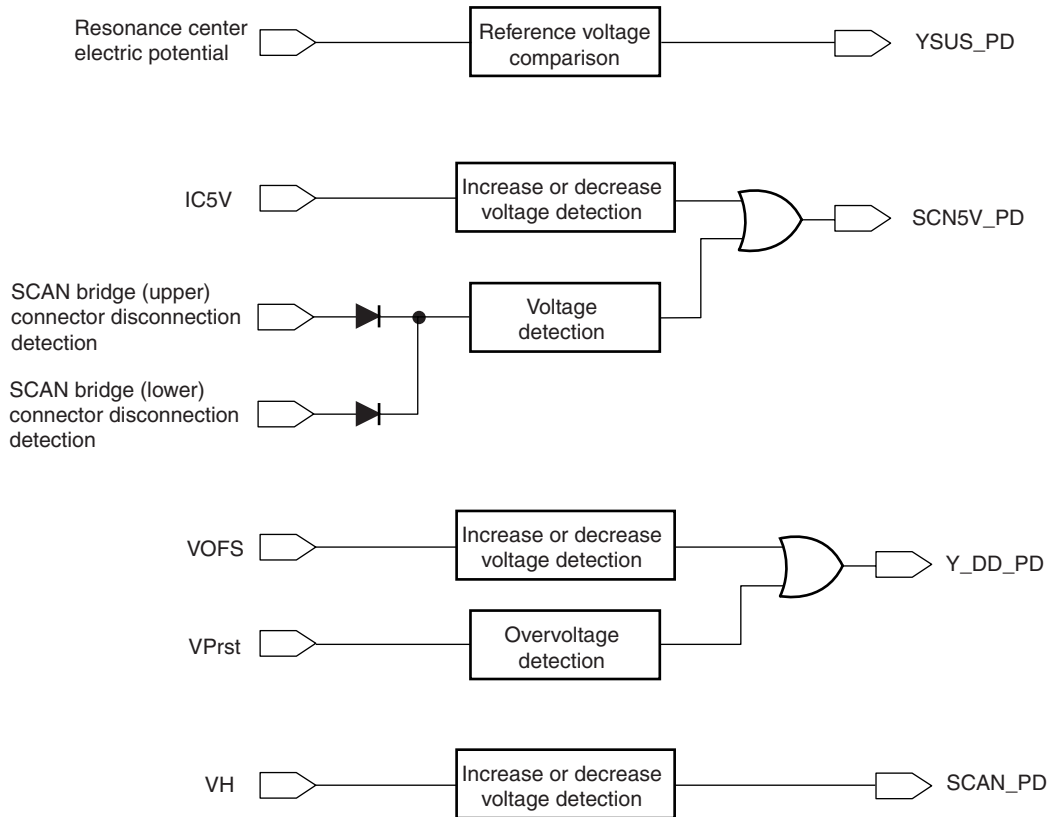
How to distinguish which connector is disconnected

Assy	Connector	To which Assy the Connector is Connected	Frequency of LED Flashing	Screen Display
50X DRIVE Assy	CN1001	50 DIGITAL Assy	11 (XDRIVE)	—
	CN1205	POWER SUPPLY Unit (ADR system power)	—	White (left half of the screen)
	CN1204	POWER SUPPLY Unit (drive system power)	12 (X-SUS)	—
	CN1206	50 ADDRESS Assy	8 (ADR)	—
50Y DRIVE Assy	CN2001	50 DIGITAL Assy	3 (SCAN)	—
	CN2204	POWER SUPPLY Unit (drive system power)	3 (SCAN)	—
	CN2206	POWER SUPPLY Unit (ADR system power)	—	White (right half of the screen)
	CN2205	50 ADDRESS Assy	8 (ADR)	—
	CN2601	50 SCAN A, B Assy	4 (SCN-5V)	—
50 SCAN A, B Assy	CN2801	50Y DRIVE Assy	4 (SCN-5V)	—
50 ADDRESS Assy	CN1602, CN1802	50 DIGITAL Assy	8 (ADRS)	—
	CN1601, CN1801	50X DRIVE Assy, 50Y DRIVE Assy	8 (ADRS)	—

X Drive PD system

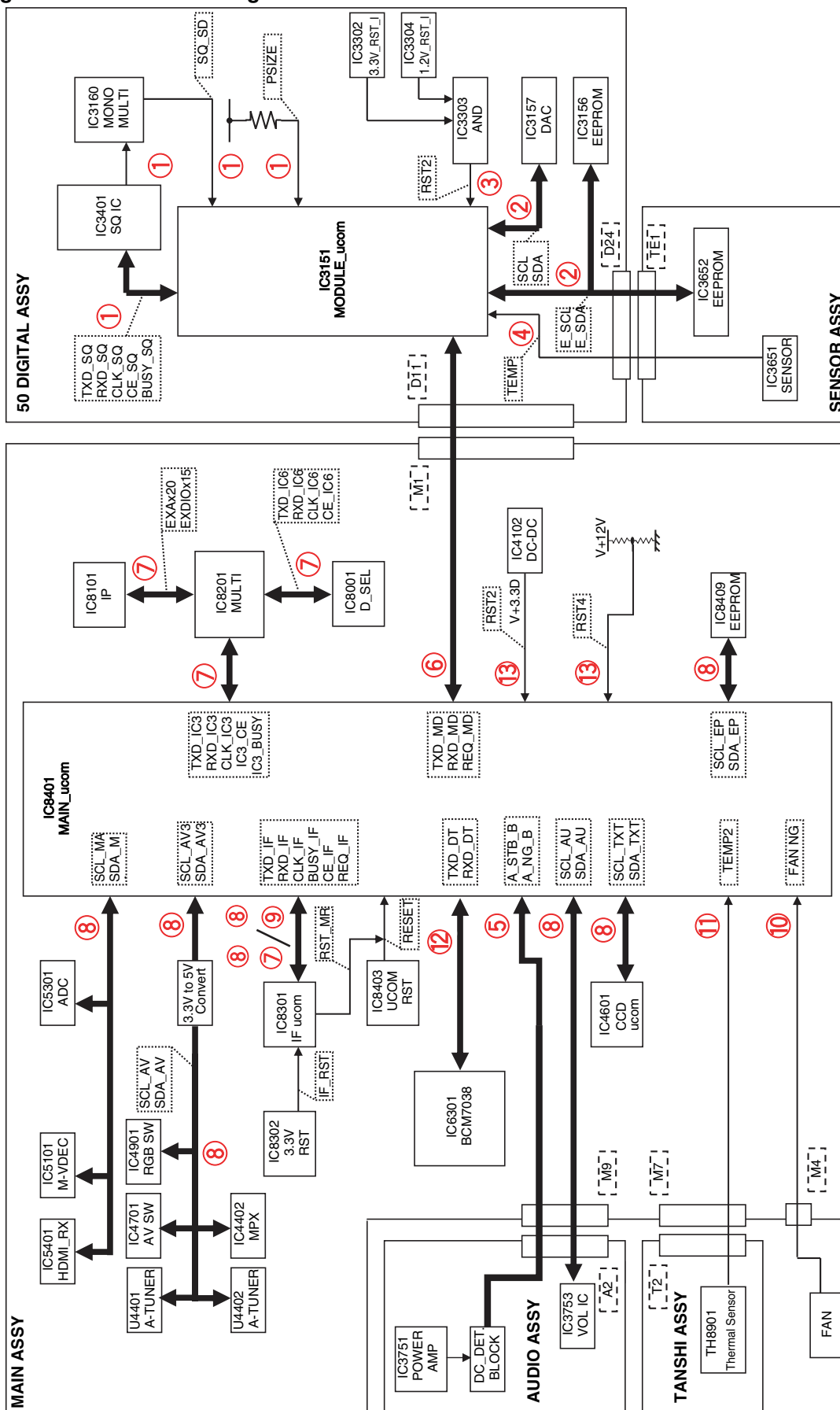


Y Drive PD system



5.3.1 BLOCK DIAGRAM OF THE SHUT-DOWN SIGNAL

■ Block Diagram of the Shutdown Signal



Block Diagram of the Shutdown Signal

Note : The figures ① to ⑬ indicate the number of times the LED flashes when shut-down occurs in the corresponding route.

5.3.2 SHUT DOWN OF FAILURE ANALYSIS

SD (SHUT DOWN) DIAGNOSIS

Frequency of LED Flashing	Major Type	Detailed Type	Log indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
Blue 1	Abnormality in the Sequence Processor	Communication error		RTRY	CLK, SQ/TXD, SQ, etc.	IC3151, IC3401	SQ, IC communication not established
		Drive stop	SQ-IC	SQNO	Check if the video sync signal is input to IC3401.	CN9001, IC3401	If the signal detection by the module microcomputer is properly performed, the unit operates on an external sync.
		Busy		BUSY	BUSY, SQ	IC3401	If BUSY, SQ remains high, a shutdown is generated.
Blue 2	Failure in IC communication with the module microcomputer	Incoherent version (hardware, software)		VER-HS	Check the model number of the DIGITAL Assy and the destination of the sequence processor.	IC3301, IC3401	The written SQ_PROG is incoherent with data on the DIGITAL Assy.
		DIGITAL Assy EEPROM		EEPROM	IIC communication line of IC3156	IC3151, IC3156	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
		SENSOR Assy EEPROM	MD-IC	BACKUP	IIC communication line of IC3652	IC3151, IC3652	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
Blue 3	Abnormality in RST2 power decrease	DAC		DAC	IIC communication line of IC3157	IC3151, IC3157	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
			RST2	-	Is the output voltage of the DC-DC converter low?	AXY1135	If RST2 does not become high after the unit is turned on, a shutdown will be generated in several seconds.
				-	The 12 V power is not output.	POWER SUPPLY Unit	Check if V + 12 V is started.
Blue 4	High temperature of the panel		TMP_NG	TMP1	Ambient temperature	-	If TEMP1 that is read by the module microcomputer is 75°C or higher, a shutdown will be generated.
				-	Abnormality in the panel temperature sensor	IC3851	Check the connection with the SENSOR Assy.
			AUDIO	-	Speaker terminals	CN3753, CN3901, JA3901	Check if any speaker cable is in contact with the chassis.
Blue 5	Short-circuiting of the speakers			-	AUDIO_AMP	IC3751	Check if the AMP output is short-circuited.
			MODULE	-	Periphery of the cable between A2 and M8	CN3752, CN4007	Check if cables are firmly connected.
				-	Communication line between MAIN and MOD	IC3151, IC8401	Check the communication lines (RXD, MOD/RXD, MOD/REQ, MOD).
Blue 6	Failure in communication with the module microcomputer			-	Periphery of the cable between DT1 and M2	CN9001, IC8401	Check if cables are firmly connected.
				-	Communication line between IF and MAIN	IC8301, IC8401	Check the communication lines (TXD, IF/RXD, IF/CLK, IF/BUSY, IF/CE, IF/REQ, IF).
			MA-SRL	MULTI	Communication line between MULTI_M and MAIN	IC8201, IC8401	Check the communication lines (TXD, IC3/RXD, IC3/CLK, IC3/CE, IC3/IC3, BUSY).
Blue 7	Failure in main microcomputer 3-wire serial communication			I/P	Bus communication line between IP and MULTI_M	IC8101, IC8201	Check the communication lines (EXA/EXDIO).
				D_SEL	Communication line between D_SEL and MULTI_M	IC8001, IC8201	Check the communication lines (TXD, IC6/RXD, IC6/CLK, IC6/CE, IC6).
				AV-SW	IIC communication line between AV_SW and MAIN	IC4701, IC8401	Check the communication lines (SCL, AV3/SDA, AV3 or SCL, AV/SDA, AV).
Blue 8	Failure in IC communication with the main microcomputer	AV Switch		FE1	IIC communication line between RGB_SW and MAIN	IC4901, IC8401	Check the communication lines (SCL, AV3/SDA, AV3 or SCL, AV/SDA, AV).
		RGB Switch		FE2	IIC communication line between A_Tuner and MAIN	U4401, IC8401	Check the communication lines (SCL, AV3/SDA, AV3 or SCL, AV/SDA, AV).
		Analog Tuner		MPX	IIC communication line between A_Tuner and MAIN	U4402, IC8401	Check the communication lines (SCL, AV3/SDA, AV3 or SCL, AV/SDA, AV).
		Analog Tuner		ADC	IIC communication line between MPX and MAIN	IC4402, IC8401	Check the communication lines (SCL, AV3/SDA, AV3 or SCL, AV/SDA, AV).
		MPX		ADC	IIC communication line between M_VDEC and MAIN	IC5101, IC8401	Check the communication lines (SCL, AV3/SDA, AV3 or SCL, AV/SDA, AV).
		Main VDEC	MA-IC	AD/PLL	IIC communication line between ADC and MAIN	IC5301, IC8401	Check the communication lines (SCL, MA/SDA, MA).
		AD/PLL		HDMI	IIC communication line between ADC and MAIN	IC5401, IC8401	Check the communication lines (SCL, MA/SDA, MA).
		HDMI		CCD	IIC communication line between HDMI_RX and MAIN	IC4601, IC8401	Check the communication lines (SCL, TX/SDA, TX).
		CCD		MA-EEP	IIC communication line between GCD and MAIN	IC8409, IC8401	Check the communication lines (SCL, EP/SDA, EP).
		64K EEPROM		AUDIO	IIC communication line between VOL_IC and MAIN	IC3753, IC8401	Check the communication lines (SCL, AUDIO/SDA, AUDIO).
		VOLUME IC		AUDIO	Periphery of the cable between A2 and M9	CN3752, CN4007	Check if cables are firmly connected.
		VOLUME IC			Communication line between IF and MAIN	IC3801, IC8303, IC8304, IC8401	Check the communication lines (TXD, IF/RXD, IF/CLK, IF/BUSY, IF/CE, IF/REQ, IF).
Blue 9	Failure in communication with the main microcomputer and unknown		MAIN	-	Dirty attached to the fan motor	-	Check the fan.
Blue 10	Failure in the fan		FAN	-	Periphery of the cable between fan and M4	CN4009	Check if cables are firmly connected.
				-	Periphery of the fan control regulator	IC8407	-
Blue 11	High temperature of the unit		TEMP2	-	Temperature sensor or its periphery	TH8901, Q8901	A shutdown is generated if TEMP2 becomes higher than 53°C.
				-	Periphery of the temperature sensor	TEMP2	TEMP2
Blue 12	Digital Tuner			-	Periphery of the cable between T2 and M7	CN8802, CN4004	Check if cables are firmly connected.
			DTUNER	PS/RST	Startup of IC6301	IC6301	Check startup of BCM7038 and the communication line between IC6301 and MAIN.
				DEVICE	Communication line between MAIN and IC6301	IC6301	Check startup of the TV-GUIDE application. (*)
Blue 13	Failure in the POWER SUPPLY Unit			TV-G	Startup of the TV-GUIDE application	IC6301	Check startup of the TV-GUIDE application. (*)
				HOME-G	Startup of the HOME-G application	IC6301	Check BCM7038 and its peripheral devices.
			MA-PWR	M-DCDC	DC-DC converter or its periphery, RST2	IC4102, Q4106	Check if V + 3.3 V is started.
		DC-DC converter power decrease		RELAY	The 12 V power is not output, RST4	-	Check if V + 12 V is started.
		POWER SUPPLY			Periphery of the cable between P8 and M2	CN4002	Check if cables are firmly connected.

(*) : Check if it becomes banner display when switching channel.

5.4 NON-FAILURE SYMPTOMS

Information on symptoms that do not constitute failure

Symptom	Cause, item to check, information
HDMI: Symptoms concerning the input format and settings	
The picture color for an INPUT 5 or 6 signal is not correct.	The color setting for INPUT 5 or 6 is not compatible with that of the output equipment. Check whether the color setting is YPbPr or RGB.
The video signal to INPUT 5 or 6 is not displayed, and a message is displayed.	A unsupported video signal is input. Example: 1080p @ 60Hz
The audio signal input to the INPUT 5 or 6 pin jack is not output.	The audio setting for INPUT 5 or 6 is "AUTO," and a video signal is not input. If the audio setting is "AUTO," to output an analog audio signal, the DVI signal must be input via a DVI-HDMI conversion cable. When the DVI equipment is connected, the analog signals are selected with the setting "AUTO."
No sound of signals to INPUT 5 or 6 is output.	The setting on the side of the HDMI output equipment is wrong. Example: Dolby Digital
MONITOR video output	
The video output signal from the MONITOR connector is deteriorated. Or when the video output signal from the MONITOR connector is recorded, its playback picture is deteriorated.	The video signal output from the MONITOR connector is Macrovision protected.
The video signal is not output when the component signal is input to INPUT 2, 3, or 4.	The video signal is not output from the MONITOR connector when the component signal is selected.
The video signal is not output when the video signal is input to INPUT 5 or 6.	The video signal is not output from the MONITOR connector when the HDMI signal is selected.
MONITOR audio output	
The image displayed on the PDP is not synchronized with the sound from the MONITOR audio output.	The audio signal from the MONITOR connector is synchronized with the video output signal from the MONITOR connector.
DIGITAL audio output	
Playback of the signal from the DIGITAL audio output connector is possible, but recording is not possible.	The video signal output from the DIGITAL connector is copy-protected.
The video output signal from the DIGITAL connector is not synchronized with that from the MONITOR video output.	The digital audio output signal from the DIGITAL connector is synchronized with the video signal that is currently displayed, and not with the MONITOR video output.
Miscellaneous	
The no-signal off function is not activated.	The no-signal off function is effective only while a video signal is being input.
The no-operation off function is not activated.	The no-operation off function is effective only while a video signal is being input.
Power management does not function.	Power management is effective only while a signal is being input from a PC.
The AUTO SETUP function is not activated.	The AUTO SETUP function is effective only while a signal is being input from a PC.
The G-Link system is not activated.	Wrong connection of the cable to the SR connector or PC audio connector is suspected.
Control via the SR connector is not possible.	A failure in the G-Link system or wrong connection of the cable to the PC audio connector is suspected.
The audio signal from the PC is not output.	A failure in the G-Link system or wrong connection of the cable to the SR connector is suspected.
The picture-quality setting (AV Selection) is not stored.	The picture-quality setting is stored for each input. As the setting is changed when another input is selected, the user may have a false idea that the setting is not stored.
The picture size changes arbitrary.	The Auto Size setting is set to ON (default is OFF).
The display position of the screen slightly changes every time the unit is turned on.	The orbiter function for minimizing the effects of phosphor burn is activated. As ON/OFF of this function can only be changed on the Integrator menu, turning off of this function by a user is not possible.
The video signal to the S video connector is not displayed.	Although S video input is selected on the menu, the cable is connected via a component video input connector whose function type is the same as S video input.
The video signal to the composite video connector is not displayed.	Although the composite video input is selected on the menu, the cable is connected via a component video connector or S video connector whose function type is the same as the composite video input.

SUPPLEMENT: On the video setting for HDMI

There are three types of HDMI output formats: color difference 4:4:4, color difference 4:2:2, and RGB4:4:4.

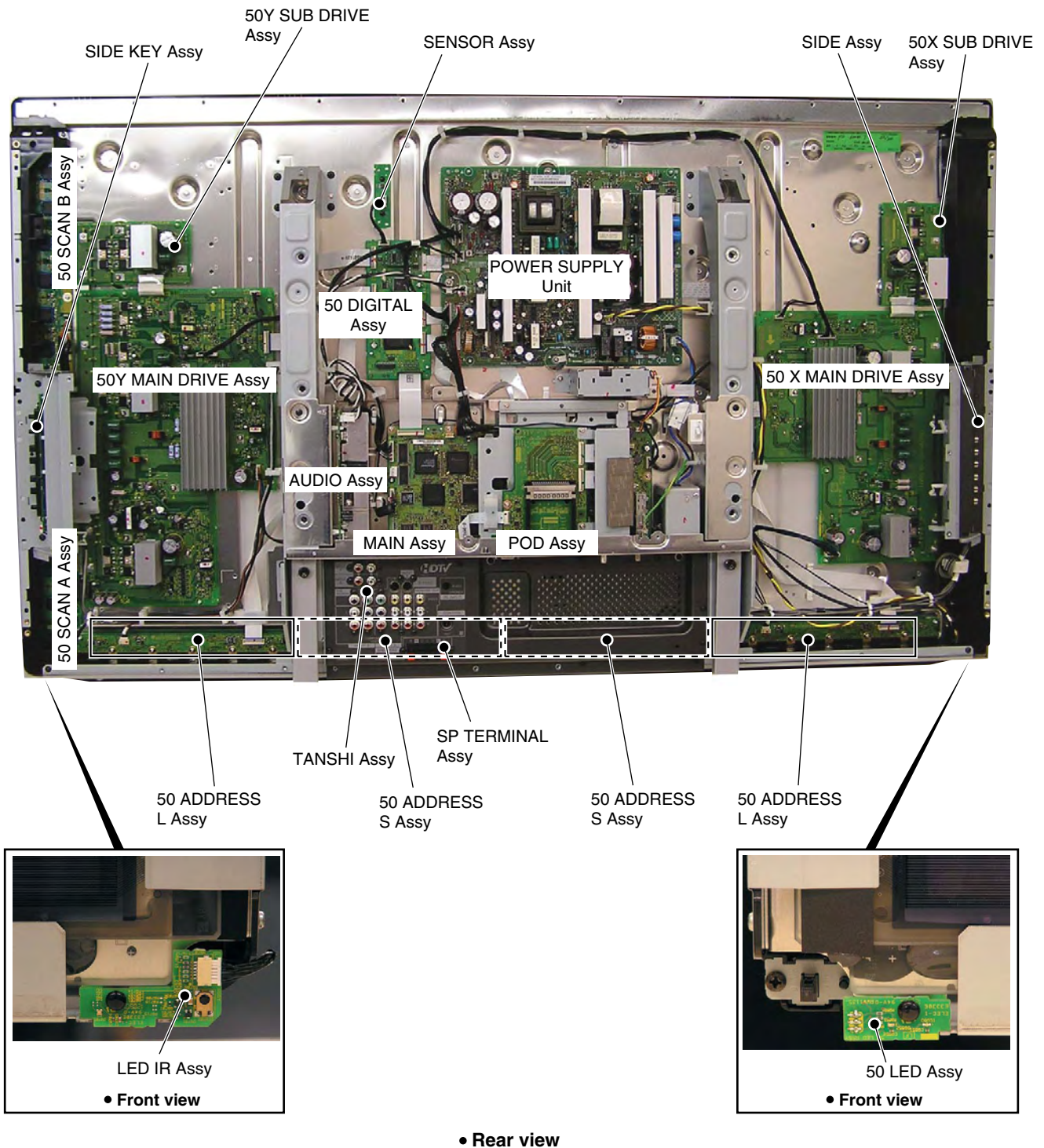
(The proportions, such as 4:4:4 and 4:2:2, represent those of the amount of data for video signal components. For example, as for color difference 4:4:4, the proportion of the amount of data as for Y, Cb, and Cr is 4:4:4.)

It is required to make the settings of the PDP according to the settings of the output equipment. For usual operation, however, set them to AUTO. If the color is inappropriate, make the settings manually.

In the HDMI system, video signals are coded at 24 bits per pixel and transmitted as a series of 24-bit pixels. In a case of color difference 4:4:4, Y, Cb, and Cr use 8 bits each. In a case of color difference 4:2:2, Y, Cb, and Cr use 12 bits each, but Cb and Cr are transmitted at a half sampling rate of Y. This unit is capable of processing the upper 10 bits out of 12 bits of video data. Recent high-end DVD players, such as Pioneer DV-79AVi, are capable of outputting 10-bit color-difference signals. In general, it is said that picture quality for color difference 4:2:2 format is assumed to be higher, because human eyes are more sensitive to luminance than to colors. In the case of RGB4:4:4, R, G, and B use 8 bits each.

6. DISASSEMBLY

6.1 PCB LOCATION



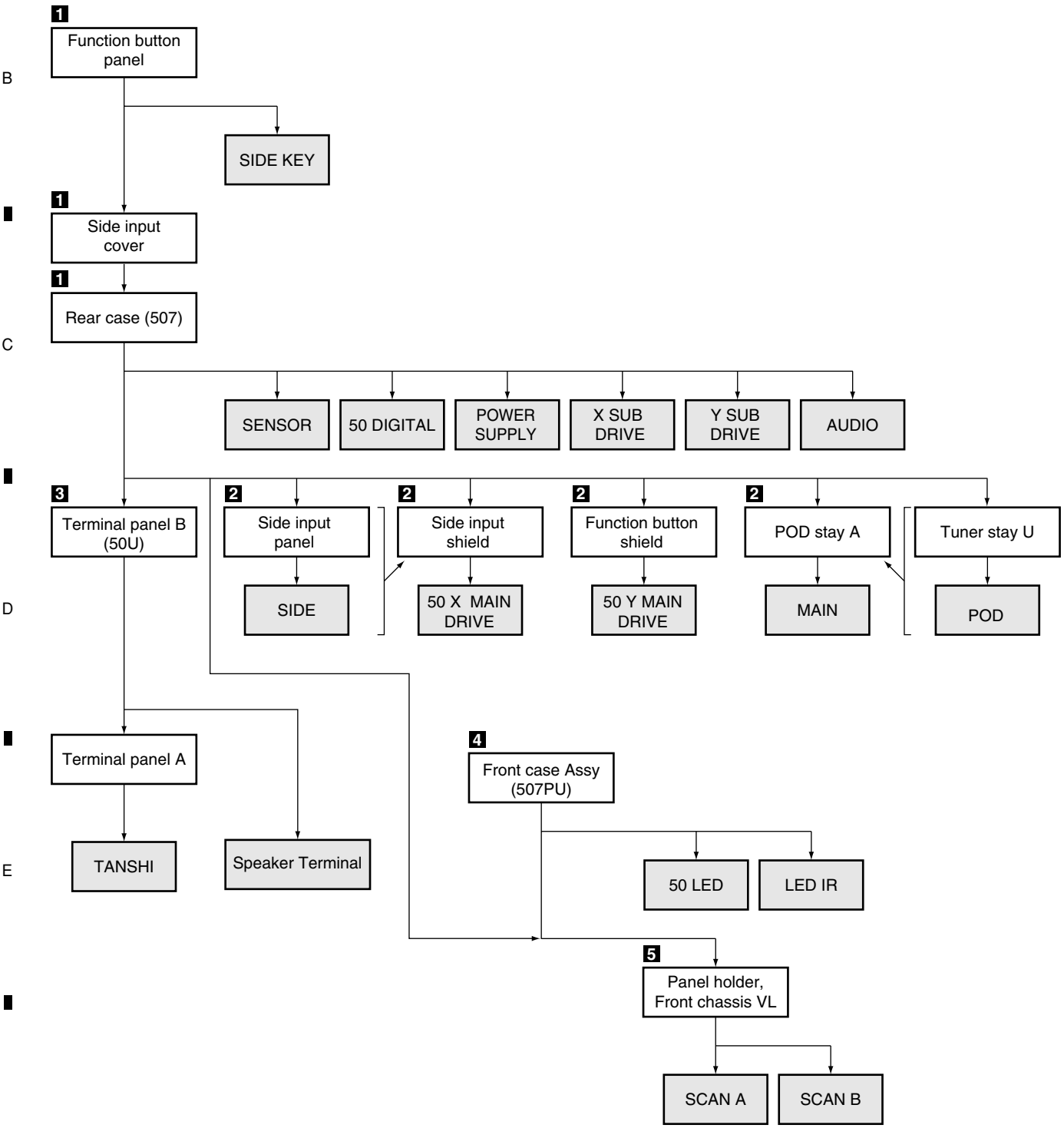
1 2 3 4

6.2 FLOWCHART OF THE MAIN PARTS AND PC BOARDS EXCHANGE

A **Note:** Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Chart of removal order for the main parts and boards

It is efficient to proceed with removal of the main parts and boards in the order shown in the chart below:



Disassembly

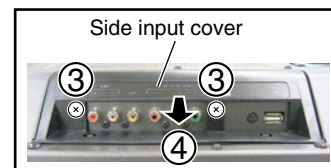
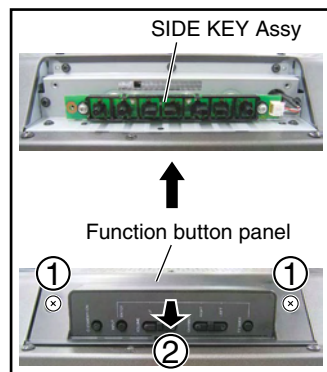
1 Rear Case (507)

● Function button panel

- ① Remove the two screws.
- ② Remove the function button panel.

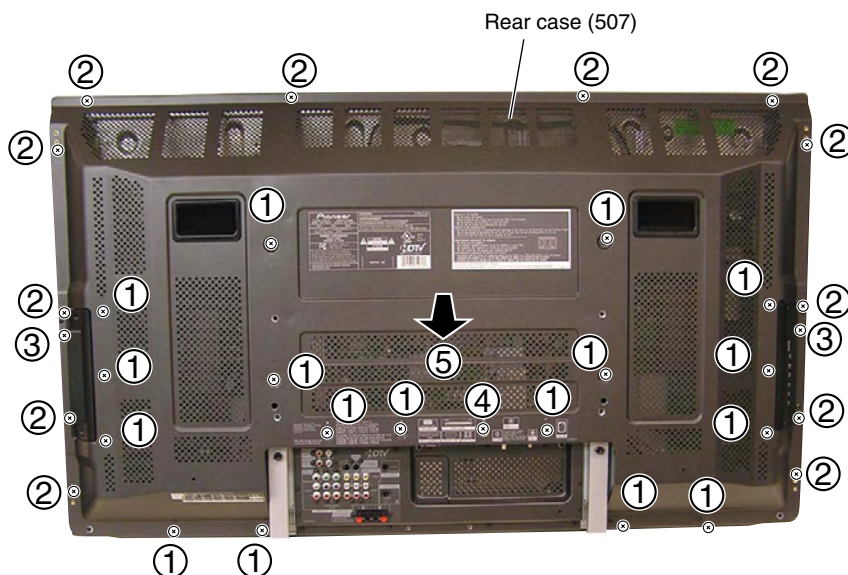
● Side input cover

- ③ Remove the two screws.
- ④ Remove the side input cover.



● Rear case (507)

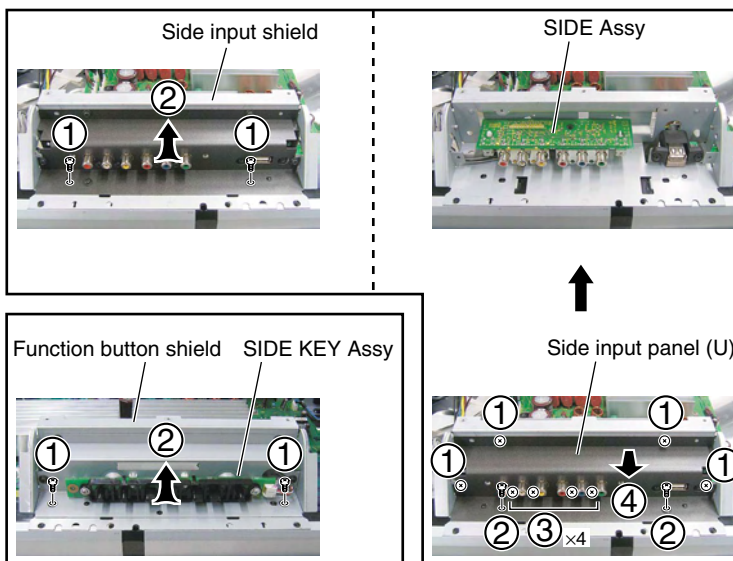
- ① Remove the 17 screws. (AMZ30P060FTB)
- ② Remove the 12 screws. (TBZ40P080FTB)
- ③ Remove the two screws. (ABA1332)
- ④ Remove the one screw. (ABA1341)
- ⑤ Remove the rear case (507).



2 Access to PCB Assys

● SIDE Assy

- ① Remove the four screws.
- ② Remove the two screws.
- ③ Remove the four screws.
- ④ Remove the side input panel (U).

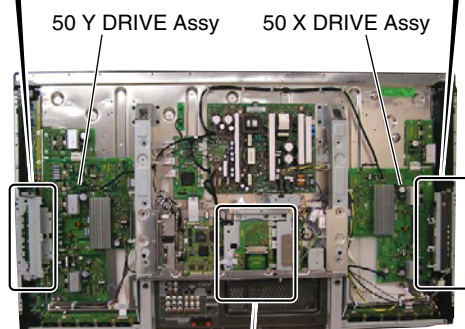


● 50 X DRIVE Assy

- ① Remove the two screws.
- ② Remove the side input shield with PCB.

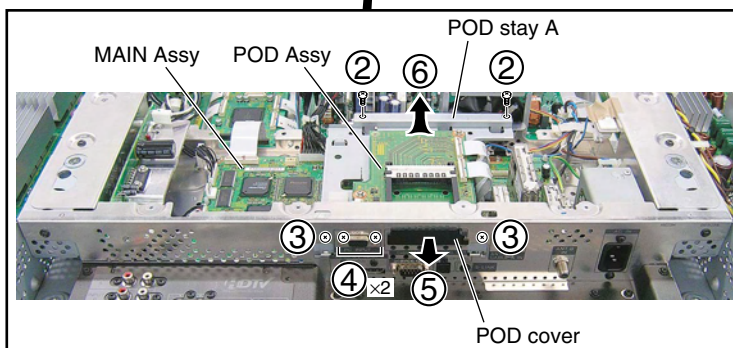
● 50 Y DRIVE Assy

- ① Remove the two screws.
- ② Remove the function button shield with PCB.



● MAIN Assy

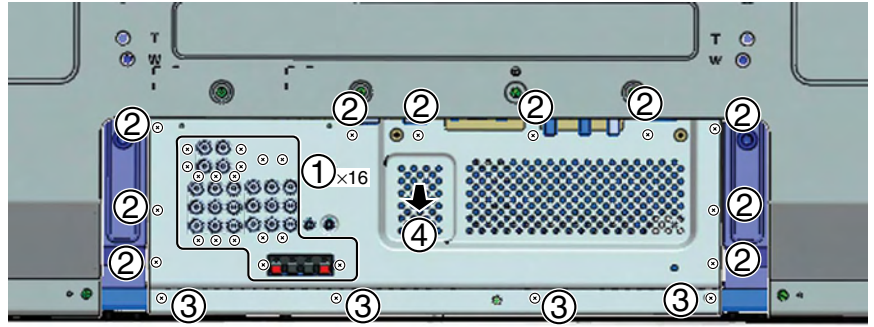
- ① Disconnect cables, connectors, as required.
- ② Remove the two screws.
- ③ Remove the two screws.
- ④ Remove the two hex. head screws.
- ⑤ Remove the POD cover.
- ⑥ Remove the POD stay A with PCB.



3 Terminal Panel B (50U)

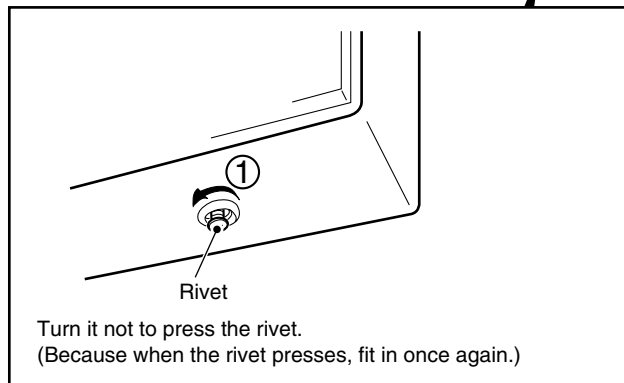
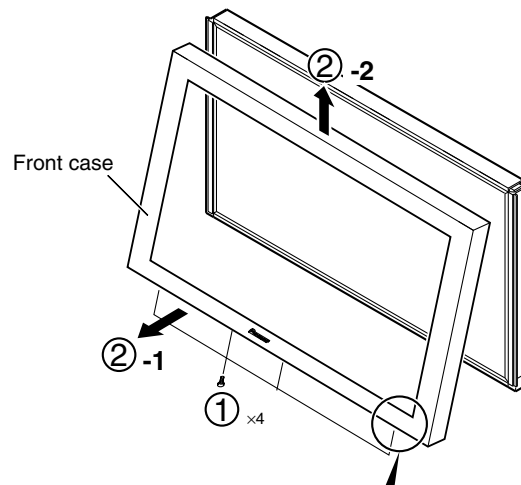
- ① Remove the 16 screws.
- ② Remove the 10 screws.
- ③ Remove the four screws.
- ④ Remove the terminal panel B (50U).

Terminal panel B (50U)



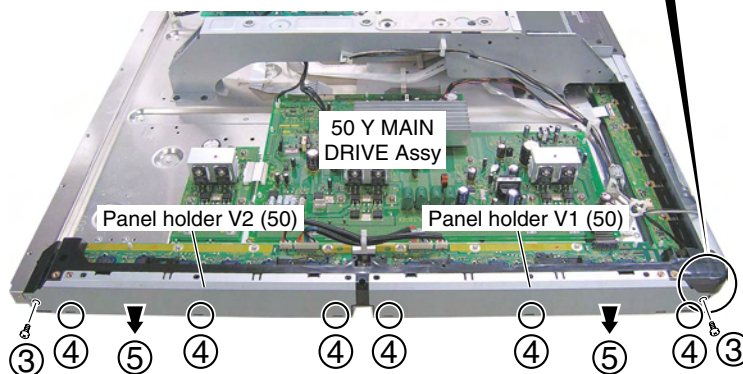
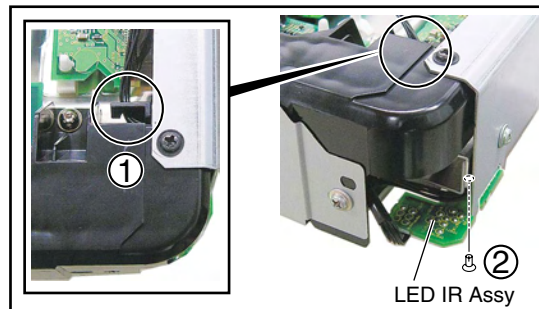
4 Front Case Assy

- ① Remove the four rivets.
- ② Remove the Front Case Assy (507PU).

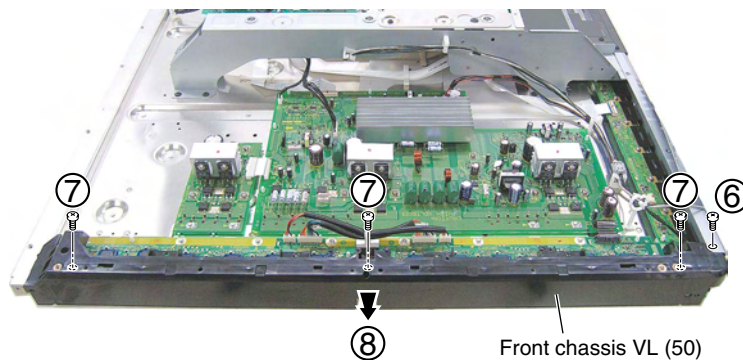


5 Exchange of SCAN IC

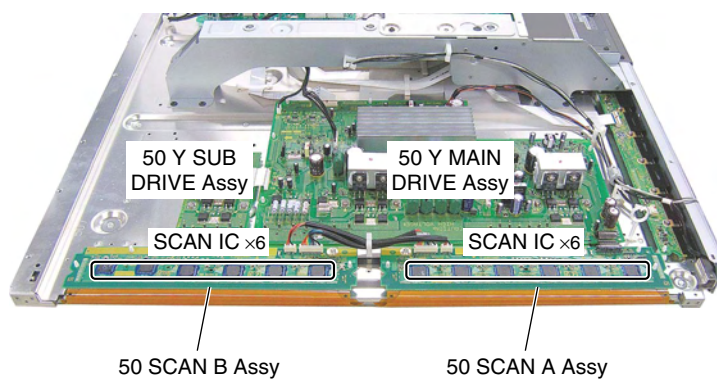
- ① Loosen the jumper wire.
- ② Remove the LED IR Assy by removing the one nylon rivet.
- ③ Remove the two screws.
- ④ Unhook the six hooks.
- ⑤ Remove the panel holders V1 (50) and V2 (50).



- ⑥ Remove the one screw.
- ⑦ Remove the three screws.
- ⑧ Remove the front chassis VL (50).



Exchange



7. ADJUSTMENT

7.1 PARTS CHANGE OF NOTES



1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

7.2 ADJUSTMENT REQUIRED WHEN THE SET IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	➡	Refer to "7.7 HOW TO CLEAR HISTORY DATA" and "7.8 PROCEDURE WHEN REPLACING THE POWER SUPPLY UNIT".
50 DIGITAL Assy	➡	Writing of backup data is required. Refer to the "7.4 BACKUP WHEN THE PANEL UNIT IS ADJUSTED. "
50X MAIN DRIVE Assy	➡	No adjustment required
50X SUB DRIVE Assy	➡	No adjustment required
50Y MAIN DRIVE Assy	➡	No adjustment required
50Y SUB DRIVE Assy	➡	No adjustment required
Service Panel Assy	➡	Refer to "7.5.1 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED" and "7.7 HOW TO CLEAR HISTORY DATA".
MAIN Assy (*)	➡	No adjustment required
SENSOR Assy	➡	Writing of backup data is required. Refer to the "7.4 BACKUP WHEN THE PANEL UNIT IS ADJUSTED. "
TANSHI Assy	➡	No adjustment required

Note: Checking the Cable Card ID

The PDP has a slot for a cable card that is used for managing your information by the cable TV company. The following procedure allows you to check your Cable Card ID and the Host ID.

1. Press HOME MENU.
2. Select "Tuner Setup". (▲/▼ then ENTER)
3. Select "Channel Setup". (◀/▶ then ENTER)
4. Select "POD ID". (▲/▼)
 - The Host ID and Cable Card ID appear.
5. Press HOME MENU to exit the menu.

(*) : When replacing the MAIN Assy, be sure to do the FINAL SETUP.

7.3 ADJUSTMENT REQUIRED WHEN PART IS REPLACED

Notes on replacing parts

For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

Reason: The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

PCB Assy No.	Function Name	Parts that Require Whole-Assy Replacement		
		Ref No.	Function Name	Part No.
AWW1139	50 DIGITAL Assy	IC3151	Module microcomputer	AGC1011
		IC3401	Sequence IC	PEG239A
		IC3301	Flash memory	AGC1009
		IC3156	EEPROM	BR24L04FJ-W
AWW1140	SENSOR Assy	IC3652	EEPROM	BR24L02FJ-W
AWV2312	MAIN Assy	IC4701	AV switch	R2S11002AFT
		IC4901	RGB switch	R2S11001FT
		IC5101	Main VDEC	UPD64015GM-UEU
		IC5301	A/D converter	AD9985KSTZ-110
		IC6201	System IC	BCM3517KQLGB0
		IC6602	DDR-SDRAM	EDD2516AKTA-6B
		IC6603	DDR-SDRAM	EDD2516AKTA-6B
		IC6604	DDR-SDRAM	EDD2516AKTA-6B
		IC6605	DDR-SDRAM	EDD2516AKTA-6B
		IC6902	NOR Flash	AGC1008
		IC8202	Flash ROM	AGC1007
		IC8402	Flash ROM	AGC1006

POWER SUPPLY Unit	➡	The assembly must be replaced as a unit, and no part replacement is allowed.
MAIN Assy (*)	➡	No adjustment is required after replacement of parts other than those mentioned above.
50 DIGITAL Assy	➡	No adjustment is required after replacement of parts other than those mentioned above.
50X MAIN DRIVE Assy	➡	No adjustment is required after replacement of parts other than those shown in "7.6 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED".
50X SUB DRIVE Assy	➡	No adjustment required
50Y MAIN DRIVE Assy	➡	No adjustment is required after replacement of parts other than those shown in "7.6 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED".
50Y SUB DRIVE Assy	➡	No adjustment required
50 ADDRESS Assy	➡	No adjustment required
SENSOR Assy	➡	No adjustment is required after replacement of parts other than those mentioned above.
TANSHI Assy	➡	No adjustment required

(*) : When replacing the MAIN Assy, be sure to do the FINAL SETUP.

■ Outline

Adjustment data are stored in the EEPROM (IC3156/4K) on the DIGITAL Assy in the production process. Those adjustment data are also automatically stored in the EEPROM (for backup: IC3652) on the SENSOR Assy. If the DIGITAL Assy is replaced, those adjustment data for backup can be copied from the EEPROM on the SENSOR Assy to a new DIGITAL Assy.

■ Backed up data

- Drive voltage adjustment value
- Hour-meter count
- Pulse-meter count
- Panel white balance adjustment value
- Serial No.
- Drive waveform adjustment value
- P-ON counter value
- PD/SD histories

■ How to copy backup data

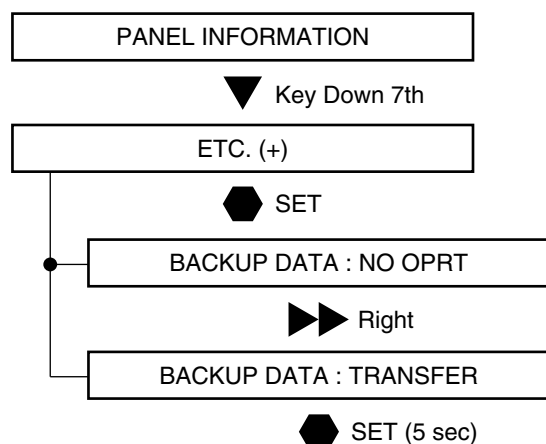
1. When the DIGITAL Assy is replaced with one for service (usual service)

Adjustment data can be restored by copying the data backed up in the SENSOR Assy to the EEPROM on a new DIGITAL Assy.

The EEPROM on the new DIGITAL Assy has no adjustment data, and the EEPROM for backup in the SENSOR Assy has adjustment data. After replacing the DIGITAL Assy, enter PANEL FACT. mode, display the PANEL INFORMATION page, then check if "NO DATA!" is set for "DIG. EEP" and "ADJUSTED" is set for "BACKUP". Then, proceed in the following steps:

(1) Copying, using the Factory menu

- ① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
- ② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Copy the backup data, as shown in the figure below.



- ③ Turn the power off.
- After the DIGITAL Assy is replaced with one for service, be sure to check if "NO DATA!" is set for "DIG. EEP" on the PANEL INFORMATION page of the PANEL FACT. mode.
- If copying of the backup data fails in the above procedure, the red LED lights, and the blue LED flashes, as a warning that no backup data were copied.
- If both the DIGITAL and SENSOR Assys are to be replaced, first replace the SENSOR Assy, turn the unit on and back off again, then replace the DIGITAL Assy.

(2) Copying, using the RS-232C commands

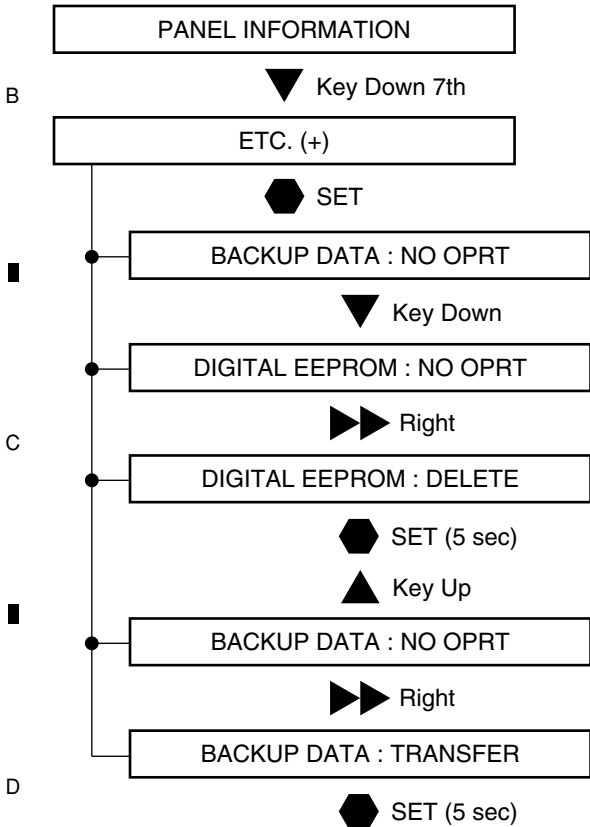
- ① Switch the RS-232C/SR+ setting to RS-232C so that RS-232C commands can be received.
- ② Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
- ③ Issue the BCP command to transfer the data stored in the EEPROM for backup.
- ④ Turn the power off.

2. When a secondhand DIGITAL Assy that had been mounted in another product is to be reused

- A As adjustment data for another product are already stored in the secondhand DIGITAL Assy, first delete those data then copy the backup data stored in the EEPROM on the SENSOR Assy.

(1) Copying, using the Factory menu

- ① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
- ② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Copy the backup data, as shown in the figure below.



- ③ Turn the power off.

Note:

If the secondhand DIGITAL Assy is mounted in the product then the unit is turned on then back off again, the data in the EEPROM on the DIGITAL Assy are copied over the EEPROM in the SENSOR Assy. Thus the backup data can never be restored. During the first power-on after the DIGITAL Assy is replaced, be sure to enter Factory mode to copy the backup data. Or, before removing the secondhand DIGITAL Assy from the original product, delete the adjustment data on it, using the Factory mode (DIGITAL EEPROM: DELETE), mount it to the product to be repaired, then copy the data from the backup EEPROM.

(2) Copying, using the RS-232C commands

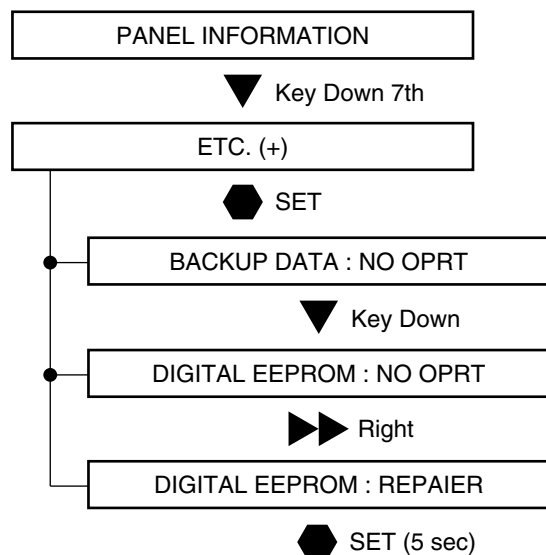
- ① Switch the RS-232C/SR+ setting to RS-232C so that RS-232C commands can be received.
- ② Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
- ③ Issue the UAJ command to delete data stored in the EEPROM on the DIGITAL Assy.
- ④ Issue the BCP command to transfer the data stored in the EEPROM for backup.
- ⑤ Turn the power off.

3. In a case where normal backup data are not stored in the backup EEPROM because the EEPROM on the DIGITAL Assy is defective, etc., and where manually adjusted values are to be applied to the product

Note: In this section, it is assumed that settings for various items have been completed, using Factory menu or RS-232C commands.

(1) Method using the Factory menu

- ① Set various setting/adjustment values.
- ② Proceed in the following steps.



- ③ Turn the power off.

Note:

When a DIGITAL Assy with an EEPROM in which adjustment data are stored is mounted, this step is not required after manual adjustment. ("DIGITAL EEPROM: REPAIR" is not indicated.)

(2) Method using the RS-232C commands

Issue the FAJ command.

1234

7.5 EXCHANGE OF SERVICE PANEL ASSY

7.5.1 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED

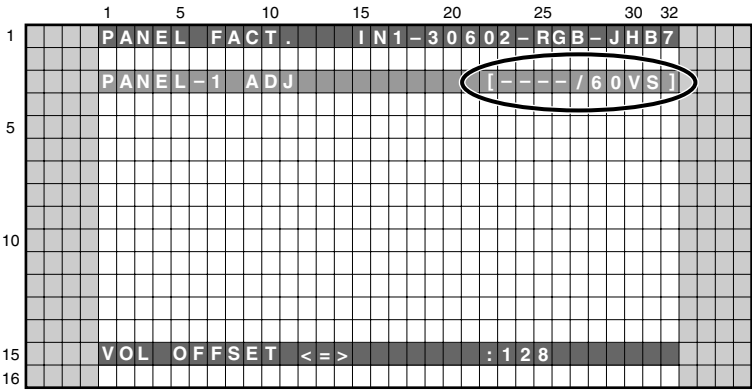
A

Flowchart for panel replacement

After replacing the panel with one for service, readjustment of the Vofs voltage margin is required.

Preparations

- Basically, the Panel Factory menu is used for the voltage margin adjustment.
- The 60-Hz video sequence is used as the drive sequence.
- While adjusting the voltage margin using the Panel Factory menu, the current drive sequence is indicated on the screen, as shown below. Make sure that "60VS" is always indicated during adjustment.



Example of the OSD while the Panel Factory menu is displayed

Supplement

- When the raster mask for margin adjustment is displayed during Panel Factory mode, the Panel White Balance is set to default, and the Panel Gamma is set to Straight in the "PANEL-1 ADJ" layer. On the third line, the OSD reads "- - - /****" (**** stands for the type of the drive sequence set).
- If you perform adjustment using RS-232C commands, use the commands shown below. These commands are different from those used during Factory Menu mode.

- PAV S00 : Used to set the Panel Drive mode to Factory.
- VFQ S03 : Used to set the Drive Sequence to Video 60 Hz.
- WBI S01 : Used to temporarily set the adjustment value of the Panel WB to default. (To return the value to its original value, use WBI S00.)
- PGM S00 : Used to set the gamma setting to Factory.

Note: If the power is shut off in the process of the adjustment procedures, send the above commands again.

OUTLINE

Mode switching

Switch modes to start the voltage adjustment, as follows:

Enter Factory mode.

Display RST MASK 01 (white).

FAY
MKS S51



Voltage setting

Set Vsus and Vyprst, and tentatively set Vofs:

VOL SUS : Set to 137 (205[V]).

VOL RST P : Set to the voltage indicated on the panel label.

VOL OFFSET : Tentatively set to the voltage indicated on the panel label.

VSU137
VRP***
VOF***



Aging

Perform aging with the fully white screen for 30 minutes

To prevent an error caused by the temperature characteristics and to let the unit show its full properties after letting it sit, perform aging for 30 minutes to raise the panel temperature to a certain extent. This ensures the accuracy of inspection and adjustment.



Actual Vofs adjustment (② to ④)

Measuring the upper limit of Vofs

Signals to be measured: red 760, red 1023+, green 1023, and blue 1023

Vofs setting

In a case where the upper limit of Vofs is less than 49:
Vofs set voltage = Upper limit value of Vofs - 9 [V]

In a case where the upper limit of Vofs is 49 or more:
Vofs set voltage = 40 [V]



CA check with black

With the black mask displayed, check if there are stationary or horizontally moving lit cells.



Confirmation of settings

Check that each voltage value is correctly set.



Command transfer

After the voltage adjustment is finished, make the following settings:

Mask: OFF, Factory: OUT



CA check

Check that the picture is properly displayed.

Use DVD, LD, and broadcast signals for checking.

Ranges of the adjustable voltages

(Ranges of the adjustable voltage when the upper and lower limits of each voltage are to be checked in this flowchart)

Vsus = 205 [137] [V]

Vofs = 15 [005] to 60 [246] [V]

Vyprst = 250 [013] to 300 [128] [V]

Vxnrst = 180 [V]

Vh = 130 [V]

Vadr = 60 [V]

Ranges of the voltage settings

(Ranges of voltage settings for this unit)

Vsus = 205 [137] [V]

Vofs = 28 [075] to 48 [182] [V]

Vyprst = 260 [036] to 300 [128] [V]

Vxnrst = 170 [V]

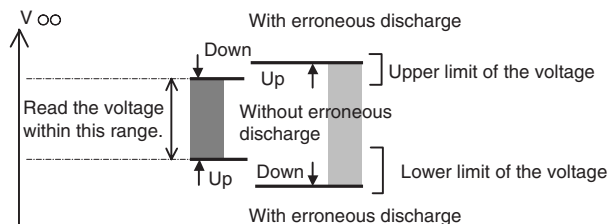
Vh = 130 [V]

Vadr = 60 [V]

When calculating the voltage, **round off the fractional part.**

(For circuit protection, it is desirable to set the voltage to a lower value.)

For margin measuring, be sure to read the value within the hysteresis (stricter value).



The Definition of Abnormal Cells

Abnormal bright cells: Within five cells on screen.

(fewer than 2 cells within a radius of 1 cm)

Abnormal dark cells: Under fifteen cells on screen.

(fewer than 2 cells within a radius of 1 cm)

Count abnormal cells at a distance of 1 m from panel.

If abnormal cells won't occur longer than one second, do not count the abnormal cells.

Do not count still dark cells and bright cells.

Standard settings of the unit at shipment:

Vsus setting = 205 [137] [V]

Vsus margin = 17 [V] or more

Vofs setting = 28 [075] to 48 [182] [V]

Vofs margin = 19 [V] or more

Vyprst setting = 260 [036] to 300 [128] [V]

Note: The voltages in the flowcharts are given in absolute values (without ±).

① Preparations

Initial setting

After turning the unit on, enter Factory mode.

FAY

with command
PAV S00
VFQ S03
WBI S01
PGM S00

Display RST MASK 01 (white).

MKS S51

Voltage setting

Set VOL SUS to 137 ($V_{sus} = 205\text{ V}$).

VOL RST P: Set to the voltage indicated on the panel label.
(See the conversion table for the electronic VR.)

VOL OFFSET: Tentatively set to the voltage indicated on the
panel label. (See the conversion table for the electronic VR.)

Aging

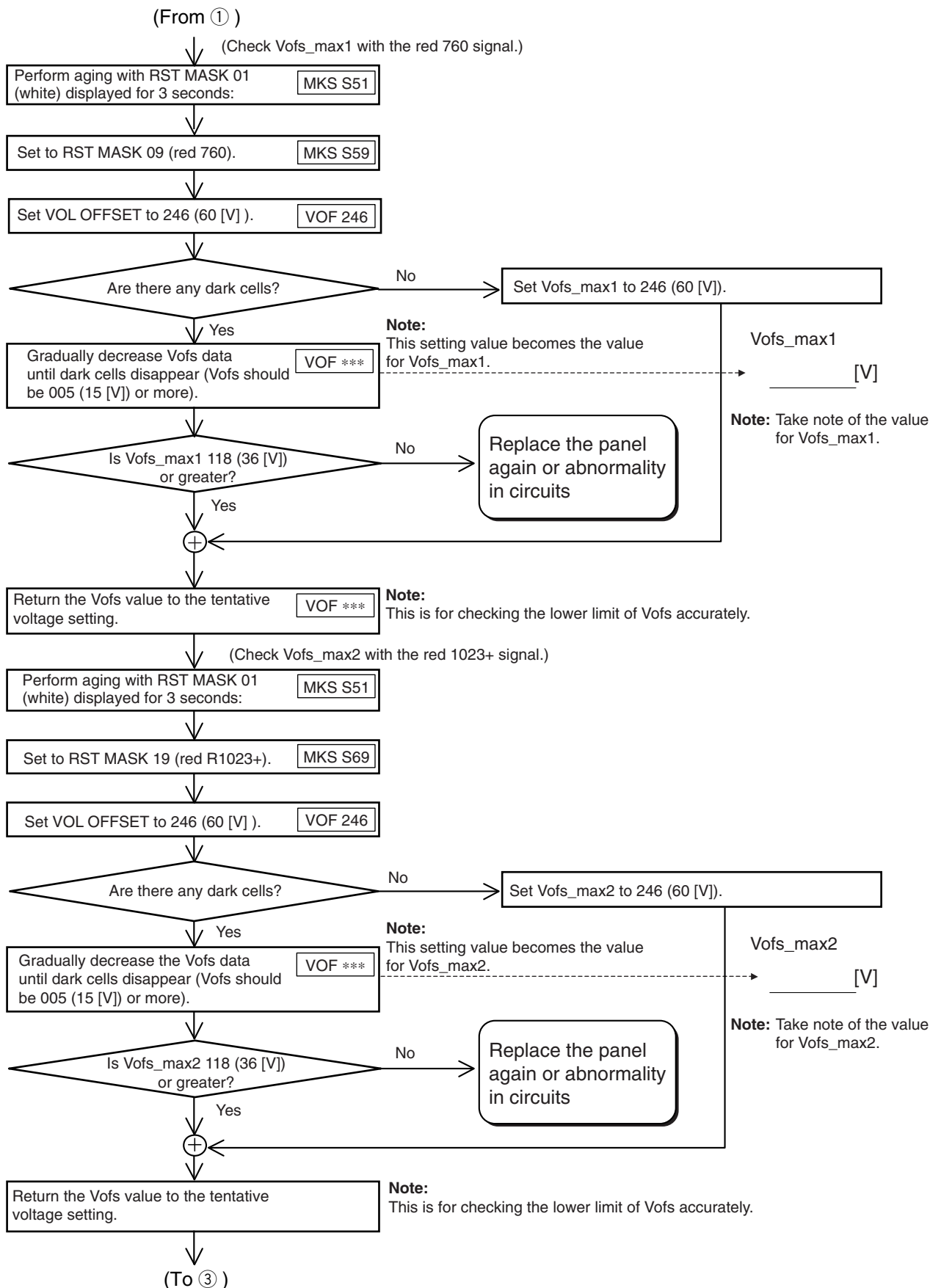
Perform aging with the fully white screen for 30 minutes

Note:

To prevent an error caused by the temperature characteristics and to let the unit show its full properties after letting it sit, perform aging for 30 minutes to raise the panel temperature to a certain extent. This ensures the accuracy of inspection and adjustment.

(To ②)

② Actual Vofs adjustment (1)

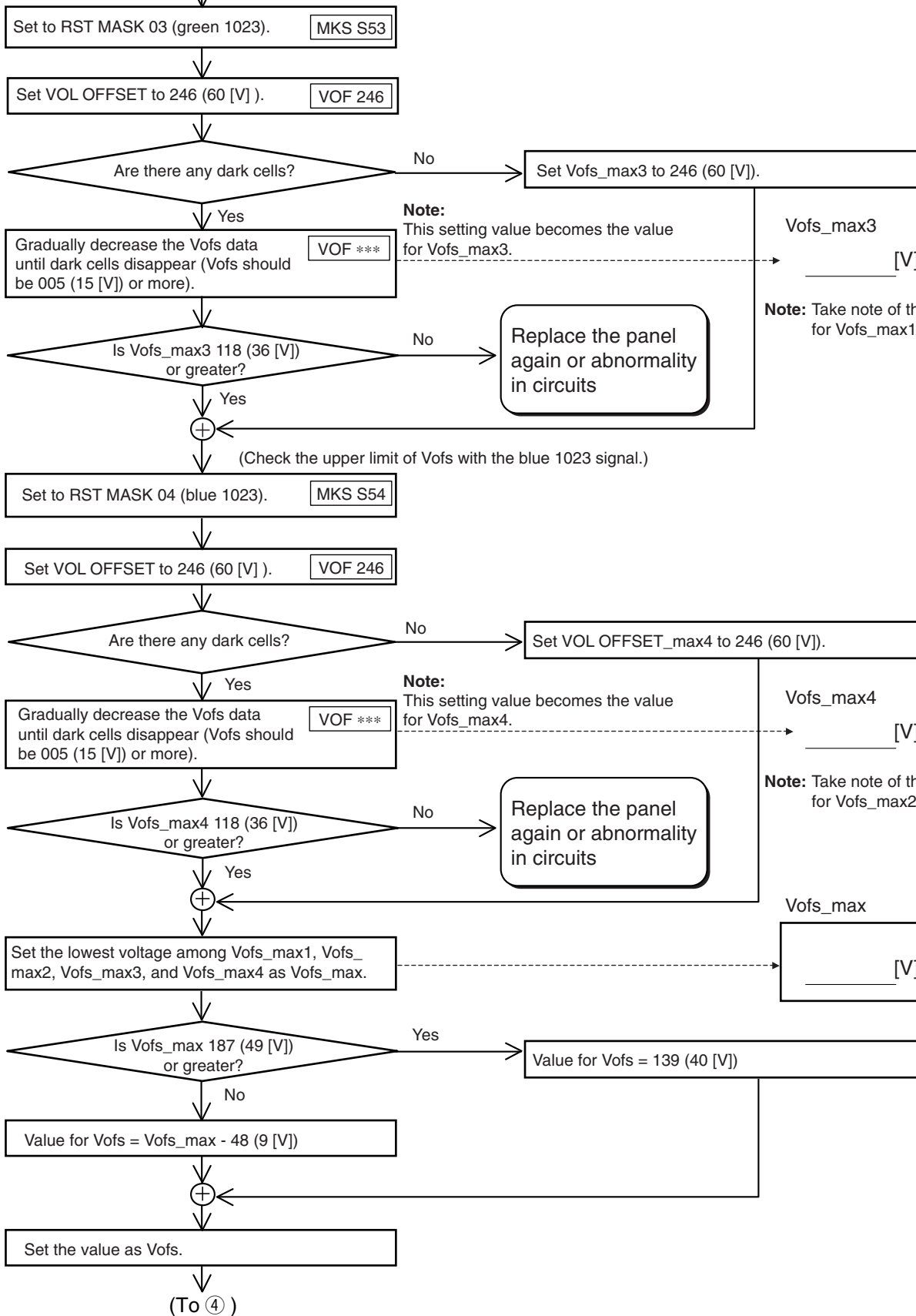


③ Actual Vofs adjustment (2)

A

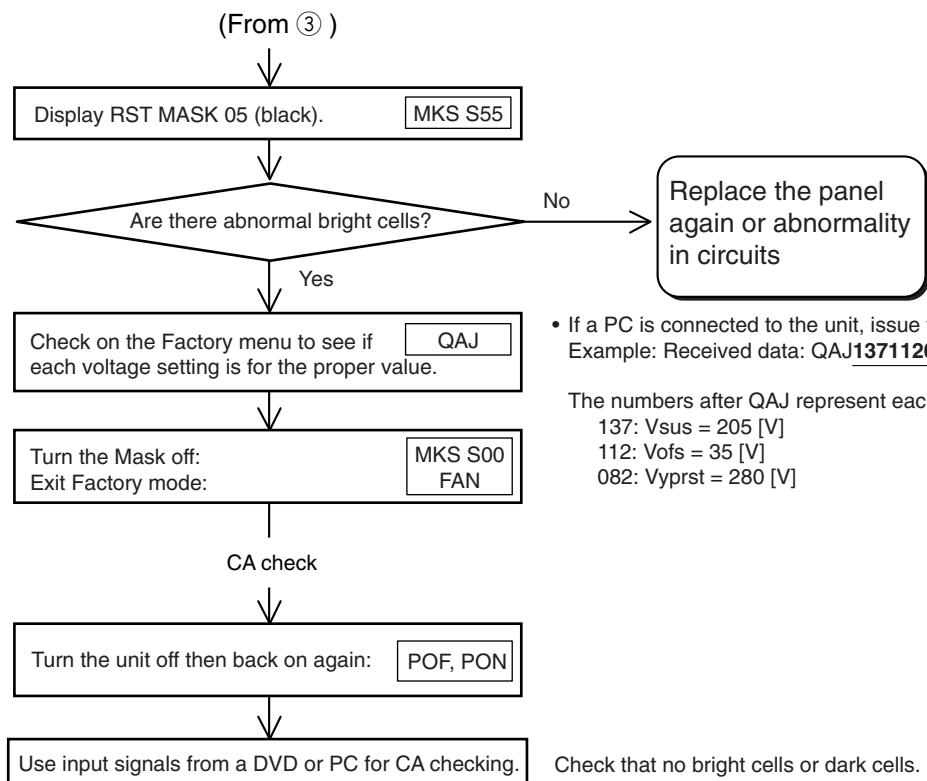
(From ②)

(Check the upper limit of Vofs with the green 1023 signal.)



F

④ Actual Vofs adjustment (3)



■ Conversion charts for electronic VRs (Vprst/Vofs)

A

Vprst [V]	Setting value [STEP]
250	013
251	015
252	018
253	020
254	022
255	024
256	027
257	029
258	031
259	034
260	036
261	038
262	040
263	043
264	045
265	047
266	050
267	052
268	054
269	056
270	059
271	061
272	063
273	066
274	068
275	070
276	073
277	075
278	077
279	079
280	082
281	084
282	086
283	089
284	091
285	093
286	096
287	098
288	100
289	102
290	105
291	107
292	109
293	112
294	114
295	116
296	119
297	121
298	123
299	126
300	128

B

C

D

E

F

Vofs [V]	Setting value [STEP]
15	005
16	011
17	016
18	021
19	027
20	032
21	037
22	043
23	048
24	054
25	059
26	064
27	070
28	075
29	080
30	086
31	091
32	096
33	101
34	107
35	112
36	118
37	123
38	128
39	134
40	139
41	144
42	150
43	155
44	160
45	166
46	171
47	176
48	182
49	187
50	192
51	198
52	203
53	208
54	214
55	219
56	224
57	230
58	235
59	240
60	246

7.6 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED

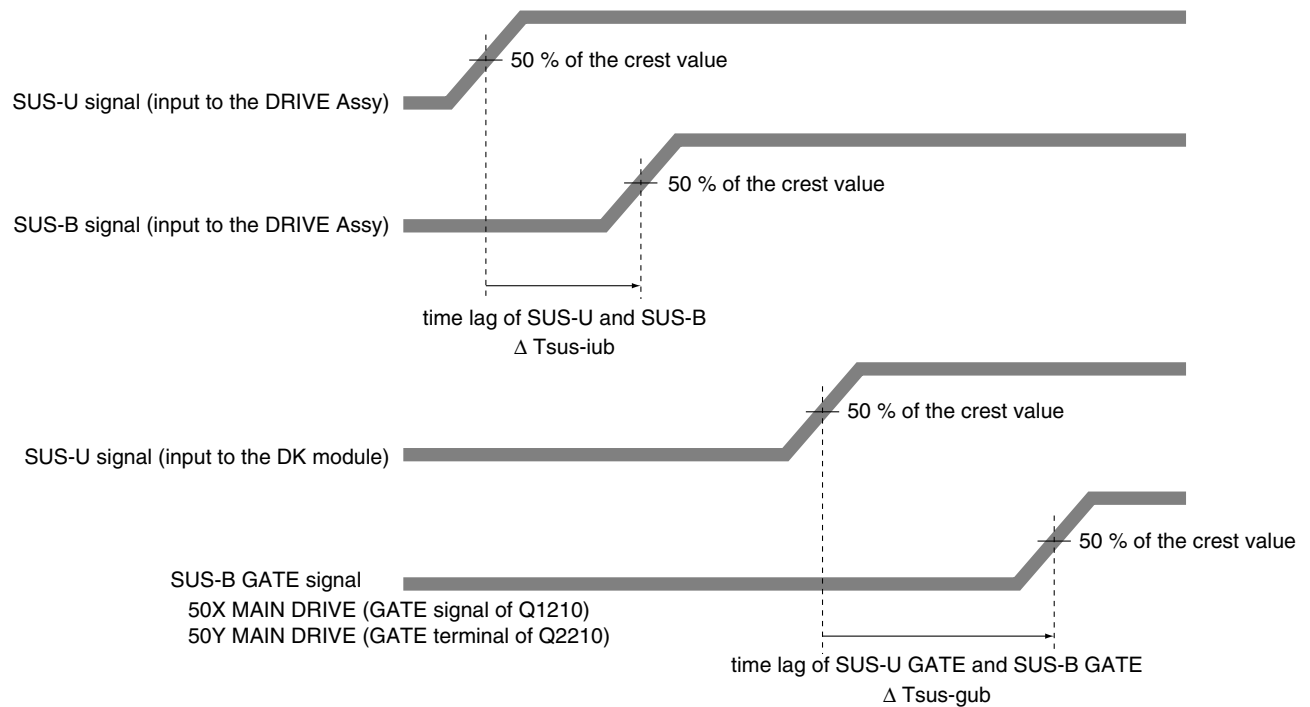
■ **Waveform adjustments required when replacing the following parts of the 50X MAIN DRIVE and 50Y MAIN DRIVE Assys.**

Assy Name	Ref No.	Part Name	Part Category	Remarks
50X MAIN DRIVE Assy	IC1205	PS9117P	Photo Coupler	
	IC1204	TND307TD	FET Driver	
50Y MAIN DRIVE Assy	IC2104	TND307TD	FET Driver	
	IC2209	PS9117P	Photo Coupler	
	IC2208	TND307TD	FET Driver	

■ TIME LAG ADJUSTMENT OF THE CONTROL SIGNAL (SUS-B)

- ① Measure the time lag for the SUS-U signal to the SUS-B signal.
 - ② Check the time lag for the SUS-B GATE signal to the SUS-U GATE signal.
- Adjust the variable control so that the time lag of GATE becomes "time lag of input signal + $\alpha \pm 5$ nsec."

Note: For details on measuring points of waveform, see the figure below.



time lag of SUS-U gate and SUS-B gate : $\Delta Tsus-gub$

Adjust so that " $\Delta Tsus-gub = \Delta Tsus-iub + \alpha \pm 5$ nsec," using the variable controls shown in the table below:

Assy	VR	Value of α
50X MAIN DRIVE ASSY	VR1001	70 nsec
50Y MAIN DRIVE ASSY	VR2001	50 nsec

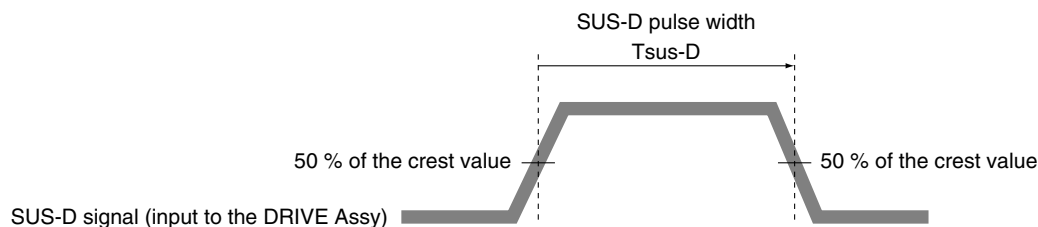
■ DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-D)

A

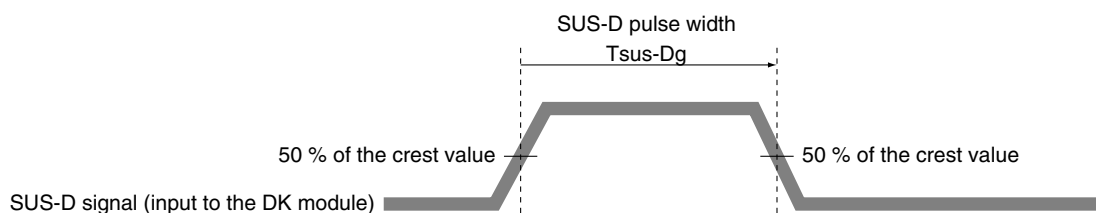
- ① Measure the pulse width of the SUS-D signal.
- ② Check the pulse width of the SUS-D input signal for the DK module.
Adjust the variable control so that the pulse width of the SUS-D input signal for the DK module becomes the "pulse width of the SUS-D signal ± 5 nsec."

Note: For details on measuring points of waveform, see the figure below.

B



C



D

SUS-D pulse width: Tsus-Dg

Adjust so that "Tsus-Dg = Tsus-D ± 5 nsec," using the variable control shown in the table below:

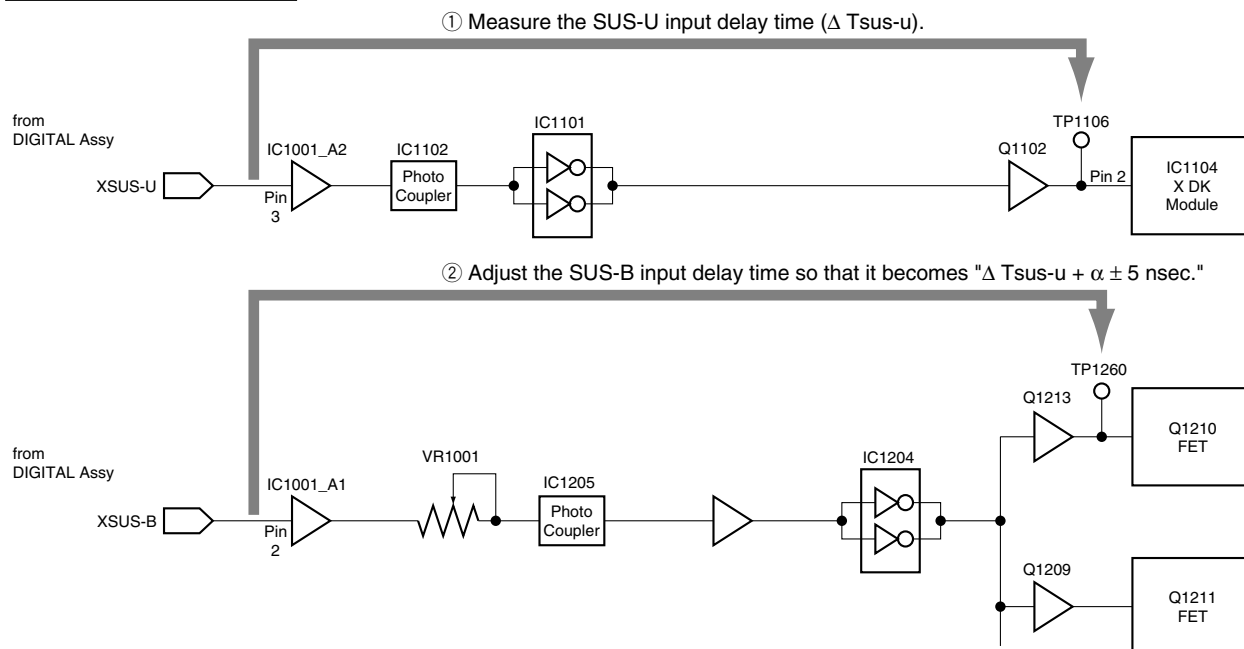
Assy	VR
Y MAIN DRIVE	VR2002

E

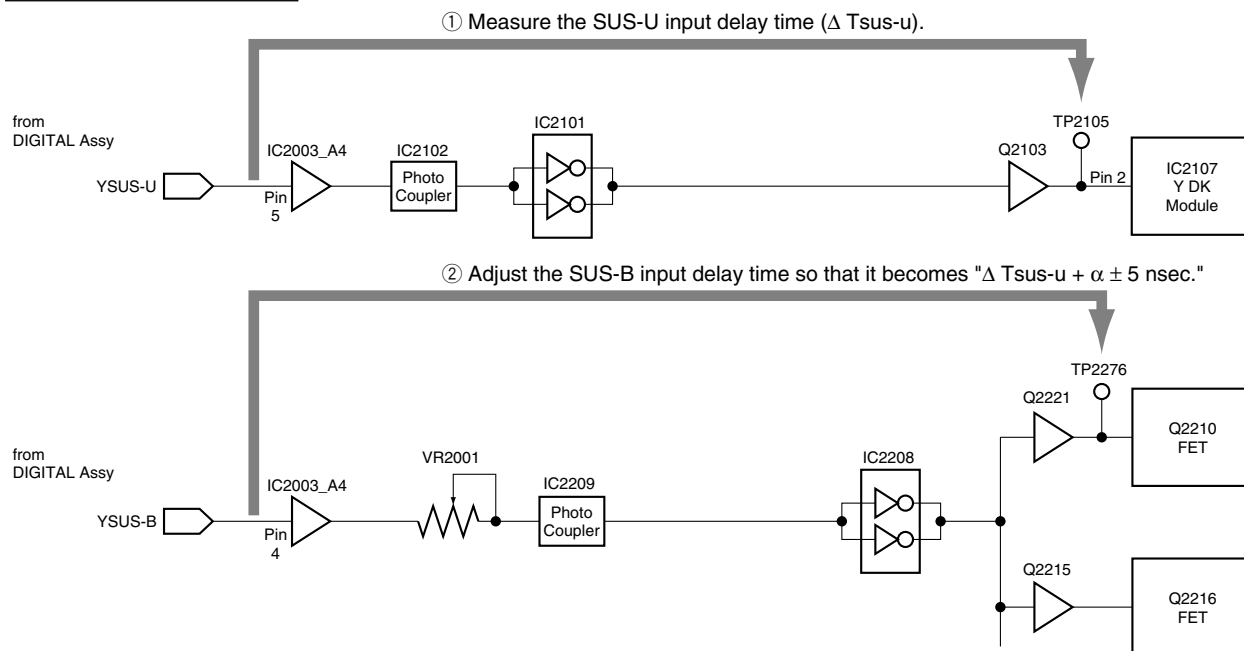
F

SUS-B ADJUSTMENT

50X MAIN DRIVE Assy



50Y MAIN DRIVE Assy



SUS-D ADJUSTMENT

50Y MAIN DRIVE Assy



7.7 HOW TO CLEAR HISTORY DATA

■ Clearance of various logs after the Assys are replaced

Besides adjustment data, data on accumulated power-on time and logs on defective parts of the product are backed up. Some of those data must be cleared after the Assys are replaced for service.

(1) Clearance of logs, using the RS-232C commands

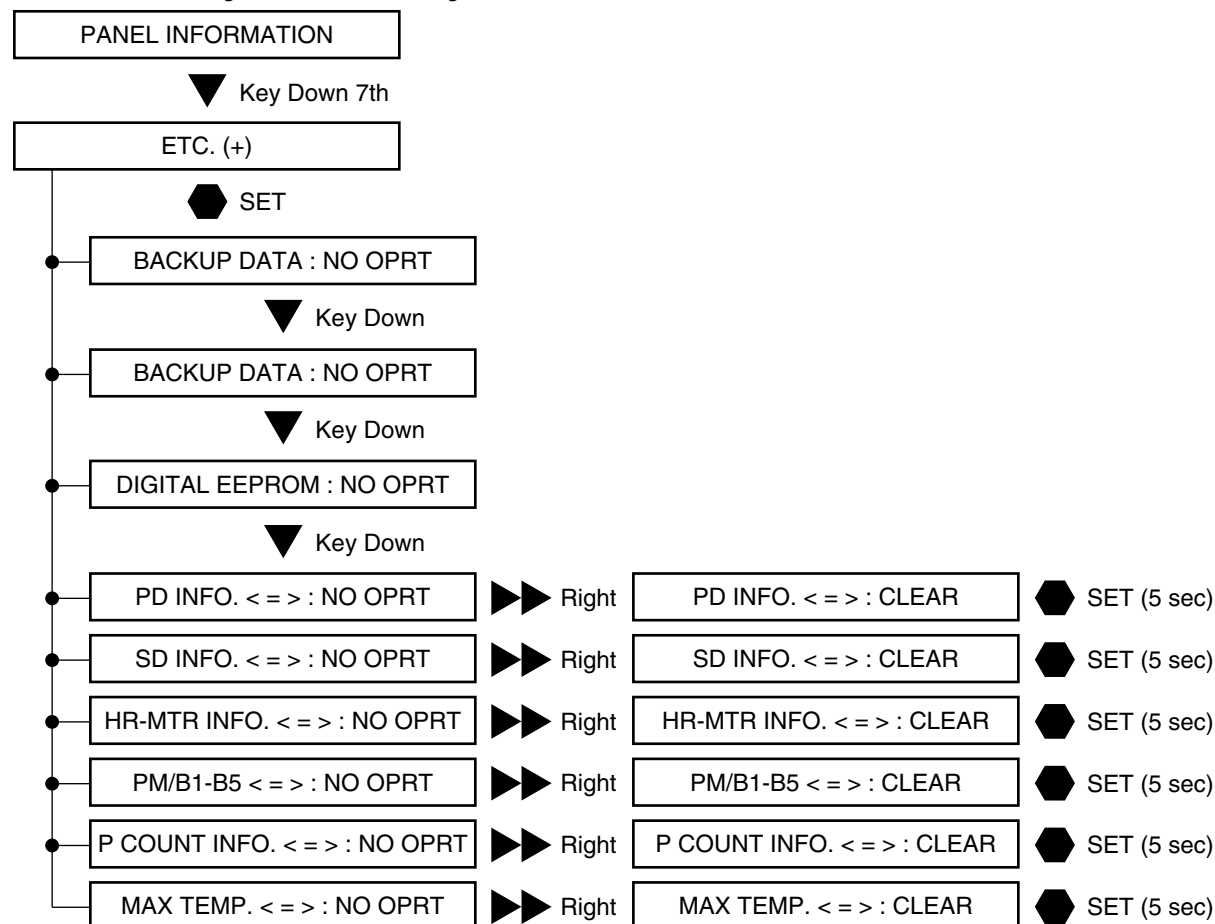
Item	Content	When the Panel is replaced	When the POWER SUPPLY Unit is replaced	When the Other parts is replaced	RS-232C Commands
Hour-meter	Accumulated power-on time	Must be cleared	No need to be cleared	No need to be cleared	CHM
Pulse-meter	Accumulated number of pulses emitted	Must be cleared (mandatory)	No need to be cleared	No need to be cleared	CPM
Shutdown history	Cause of an SD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CSD
Power-down history	Cause of an PD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CPD
Power-on counter	Relay-on count	No need to be cleared	Must be cleared (mandatory)	No need to be cleared	CPC
MAX TEMP	Historical max. temperature	Must be cleared	Must be cleared	Must be cleared	CMT

Notes:

- As the pulse-meter count is used for each correction function, it must be cleared when an Assy relevant to correction functions is replaced.
- When clearing logs, using the RS-232C commands, first enter Factory mode (by issuing FAY or PFY), then issue the corresponding command.

(2) Clearance of logs, using the Factory menu

- Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
- Turn on the power, using the remote control unit, then enter Panel Factory mode.
Delete various logs, as shown in the figure below.



- Turn the power off.

7.8 PROCEDURE WHEN REPLACING THE POWER SUPPLY UNIT

■ Procedure of Changing Jumper Connector after replacing the Power Supply Unit

When replacing the Power Supply Unit, it is necessary to perform the following connector changes.

Otherwise the unit cannot work properly and the unit may be damaged.

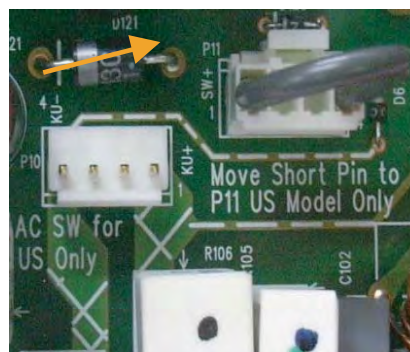
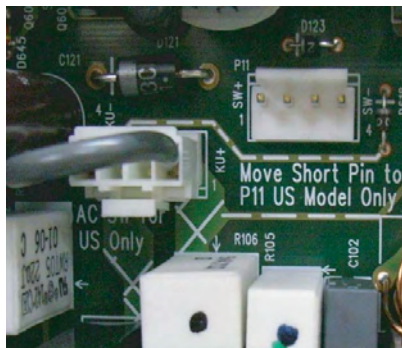
Therefore perform these connector settings without fail when replacing the Power Supply Unit. (before power on the unit)



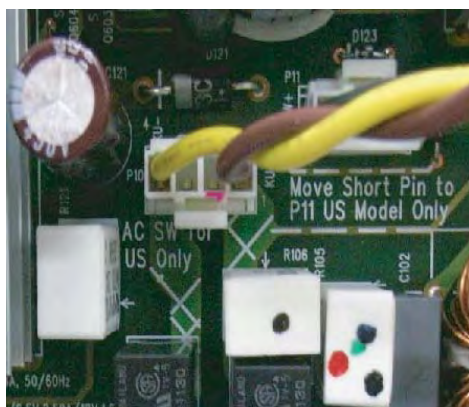
Location of the jumper connector

1. As for service parts, the Jumper connector is connected at connector P10.

2. Remove the jumper connector from connector P10 and connect it to connector P11.



3. Connect the cable connector from power SW to P10.

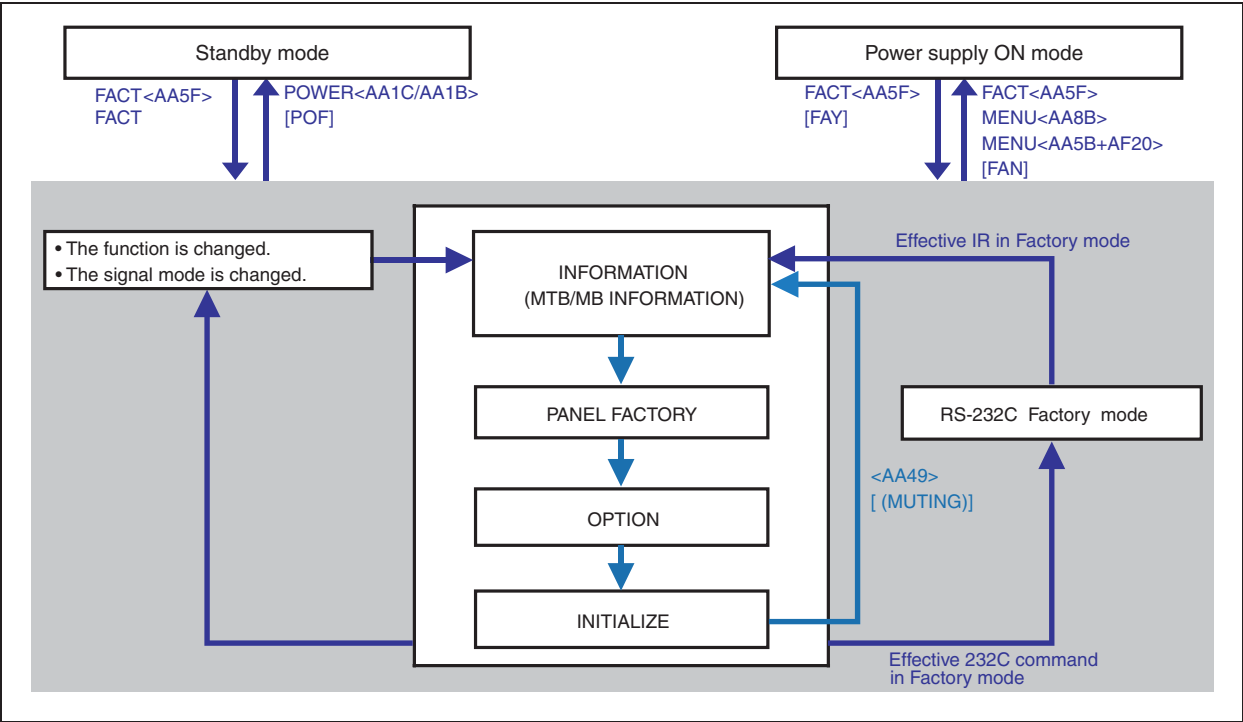


8. SERVICE FACTORY MODE

8.1 SERVICE FACTORY MODE OUTLINE

A Operations during Service/Factory mode are described here.

8.1.1 TRANSITION DIAGRAM OF SERVICE FACTORY MODE



8.1.2 HOW TO ENTER/EXIT SERVICE FACTORY MODE

How to enter Service Factory Mode and do it go out.

- How to enter Service Factory Mode.**
 - Case operated by remote control)
 - Service remote control : press[FACTORY1]key.
 - Case to RS-232C transmit command)
 - Standby mode : Send [PON]+[FAY] .
 - Power supply ON mode : Send[FAY] .

- How to come off Service Factory Mode.**
 - Case operated by remote control)
 - Service remote control : press [FACTORY1] key.
 - Remote control : press [HOME MENU] key.
 - Case to RS-232C transmit command)
 - Send [FAN] .

■ Functions whose setting are set to OFF.

The settings for the following functions are set to OFF when Service Factory mode is entered (Including when the “FAY” command is received) :

No.	Function	Remarks
1	Two screen operation	Input function set on the main side is selected.
2	FREEZE	
3	Mask control	MTB/MB is none. It becomes processing on the PANEL side.
4	ORBITER	Central value operation.
5	Detection of the TRAP switch	The detection operation is stopped.
6	TRAP history	To a possible turning on though the memory is maintained.
7	Display of TV guide	
8	Setting of Parental Control	When this is turned off, the block of the screen is released.

Note) Enter the factory after canceling ACI because the ACI operation setting OFF and not done.

■ User data

User data will be treated as follows :

- User data on picture- and audio-quality adjustments are not reflected, and factory-preset data are output (user data will be retained in memory). When the unit enters Service Factory mode, the current audio-quality adjustment data will be still be retained in memory.
- As to data on various settings, user data will be applied to the items that are associated with signal format change (screenize switching, etc).
- Data on screen (i.e.,screen position; meaning clock dividers, and not including data on screen size) Are reset to the default values (data stored in memory will be retained). Screen size will be retained.

Remote control codes in Service Factory mode.

SR/R Keys	Basic Functions	Remarks
Muting	Switching the main items	Shifting to the next main item (top).
↓(DOWN)	Switching the subtitled items.	Shifting downward to the next subtitled item.
↑(UP)	Switching the subtitled items.	Shifting upward to the next upper layer.
←(LEFT)	Decreasing the adjustment value.	Decreasing the adjustment value.
→(RIGHT)	Increasing the adjustment value.	Increasing the adjustment value.
ENTER/SET	Switching the layers.	Shifting downward or upward to the next lower or upper layer.
INPUT	Selecting INPUT.	Shifting the INPUT to the next function.
INPUTxx	Selecting INPUT.	Switching the INPUT to xx. (xx=1-6 etc)
CH+/P+	Increasing the channel number.	Advancing.
CH-/P-	Decreasing the channel number.	
Numeric keys	Function: TV	Function: TV(previously selected channel number is selected).
POWER	Power OFF	Turning the power off.
FACTORY	Factory OFF(Factory mode) Factory ON(Non-Factory mode)	In Factory mode , turning Factory mode off. In Non-Factory mode , turning Factory mode on.
HOME MENU *1	Menu ON.	In Factory mode , turning Factory mode off, and Menu mode on.
VOLUME+	Volume UP.	Increasing 10 the adjustment value. (PANEL FACTORY)
VOLUME-	Volume DOWN.	Increasing 10 the adjustment value. (PANEL FACTORY)
DRIVE ON/OFF *2	Drive Mode OFF.	Turning Drive mode off.
INTEGRATOR *1	INTEGRATOR MENU ON	Enter INTEGRATOR MODE.

[Note] *1 : A pertinent key that exists in the service remote control, becomes effective only in the factory and integrator mode.
Please use the remote control of the attachment when you normally operate it in the mode (home menu operation, etc.).
*2: When ten seconds have passed since the [DRIVE ON/OFF] key was pressed at the standby, it becomes invalid.
Please press [POWER] key from the [DRIVE ON/OFF] key pressing within ten seconds when you do power supply ON while driven OFF.

Remote Control Unit
for Servicing



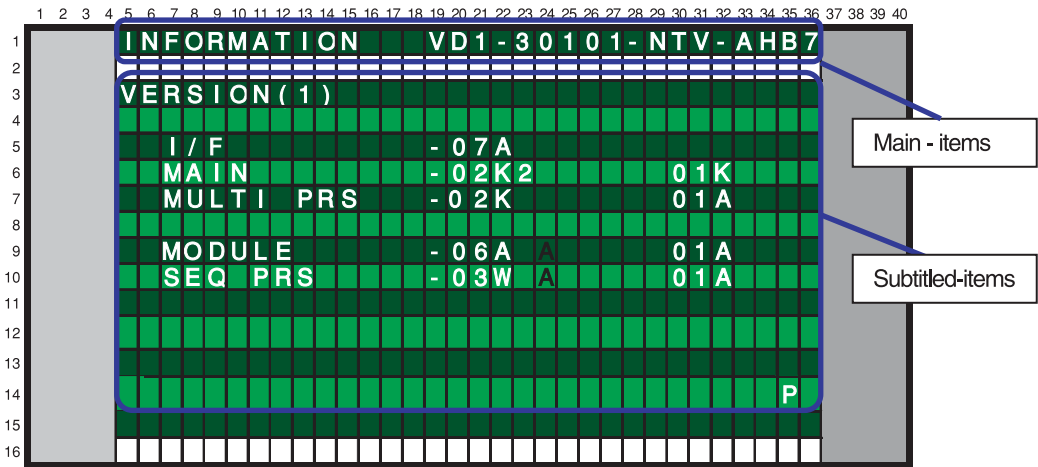
8.1.5 CONFIGURATION OF FACTORY MODE

■ Configuration of G7 Factory mode

Main item	Submode Name	Submode item	Adjustable Range	Remarks
8.2.1 INFORMATION				
	8.2.1.1 VERSION (1)			
	8.2.1.2 VERSION (2)			
	8.2.1.3 VERSION (3)			
	8.2.1.4 MAIN NG	CLEAR <=>	NO<=>YES	
	8.2.1.5 TEMPERATURE			
	8.2.1.6 HOUR METER	MTB HOUR METER	NO<=>YES	
	8.2.1.7 HDMI SIGNAL INFO 1			
	8.2.1.8 HDMI SIGNAL INFO 2			
	8.2.1.9 VDEC SIGNAL INFO			
	8.2.1.10 DTV TUNING STATUS1			
	8.2.1.11 DTV TUNING STATUS2			
	8.2.1.12 DTV TUNING STATUS3			
	8.2.1.13 DTV TV-GUIDE BER			for technical analysis
	8.2.1.14 DEBUG INFO			for technical analysis
8.2.2 PANEL FACTORY (+)				
	8.2.2.1 PANEL INFORMATION			
	8.2.2.2 PANEL WORKS			
	8.2.2.3 POWER DOWN			
	8.2.2.4 SHUT DOWN			
	8.2.2.5 PANEL-1 ADJ (+)			
		X-SUS B <=>	120 to 136	
		Y-SUS B <=>	120 to 136	Equivalent to YSB
		Y-SUSTAIL T1 <=>	120 to 136	Equivalent to YTG
		Y-SUSTAIL T2 <=>	120 to 136	Equivalent to YTB
		Y-SUSTAIL W <=>	120 to 136	Equivalent to YTW
		XY-RST W1 <=>	120 to 136	Equivalent to RSW
		XY-RST W2 <=>	120 to 136	Equivalent to RYW
		VOL SUS <=>	000 to 255	Equivalent to VSU
		VOL OFFSET <=>	000 to 255	Equivalent to VOF
		VOL RST P <=>	000 to 255	Equivalent to VRP
		SUS FREQ. <=>	MODE1-MODE8	Equivalent to SFR
	8.2.2.6 PANEL-2 ADJ (+)			
		R-HIGH <=>	000 to 511	Equivalent to PRH
		G-HIGH <=>	000 to 511	Equivalent to PGH
		B-HIGH <=>	000 to 511	Equivalent to PBH
		R-LOW <=>	000 to 999	Equivalent to PRL
		G-LOW <=>	000 to 999	Equivalent to PGL
		B-LOW <=>	000 to 999	Equivalent to PBL
		ABL <=>	000 to 255	Equivalent to ABL
	8.2.2.7 PANEL REVISE (+)			
		R-LEVEL <=>	LV-0 to LV-7	Equivalent to RRL
		G-LEVEL <=>	LV-0 to LV-7	Equivalent to RGL
		B-LEVEL <=>	LV-0 to LV-7	Equivalent to RBL
	8.2.2.8 ETC (+)			
		BACKUP DATA <=>	NO OPRT <=> TRANSFER or ERR	Equivalent to BCP
		DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	Equivalent to FAJ/UAJ
		PD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPD
		SD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CSD
		HR-MTR INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CHM
		PM/B1-B5 <=>	NO OPRT <=> CLEAR	Equivalent to CPM
		P COUNT INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPC
		MAX TEMP. <=>	NO OPRT <=> CLEAR	Equivalent to CMT
	8.2.2.9 RASTER MASK SETUP (+)			
		MASK OFF		Equivalent to MKS+S00
		RST MASK 01 <=>	<=> 48V <=> 50V <=> 60V <=>	Equivalent to MKS+S51
		...	60P <=> 70P <=> 72V <=> 75V <=>	...
		RST MASK 24 <=>		Equivalent to MKS+S74
	8.2.2.10 PATTEN MASK SETUP (+)			
		MASK OFF		Equivalent to MKS+S00
		PTN MASK 01 <=>	<=> 48V <=> 50V <=> 60V <=>	Equivalent to MKS+S01
		...	60P <=> 70P <=> 72V <=> 75V <=>	...
		PTN MASK 39 <=>		Equivalent to MKS+S39
	8.2.2.11 COMBI MASK SETUP (+)			
		MASK OFF		Equivalent to MKC+S00
		CMB MASK 01 <=>	<=> 48V <=> 50V <=> 60V <=>	Equivalent to MKC+S01
		CMB MASK 10 <=>	60P <=> 70P <=> 72V <=> 75V <=>	...
				Equivalent to MKC+S10
8.2.3 OPTION				
	8.2.3.1 EDID WRITE MODE <=>		OFF <=> ON	for production line
	8.2.3.2 ANTENNA MODE <=>		CABLE <=> AIR	for production line
	8.2.3.3 AFT <=>		OFF <=> ON	for production line
8.2.4 INITIALIZE				
	8.2.4.1 SYNC DET (+)			for technical analysis
	8.2.4.2 SG MODE <=>		SG OFF<=>...	
	8.2.4.3 SG PATTERN <=>		SG PATTERN<=>COLORBAR1...	
	8.2.4.4 SIDE MASK LEVEL (+)			
		R MASK LEVEL <=>	000 to 255	
		G MASK LEVEL <=>	000 to 255	
		B MASK LEVEL <=>	000 to 255	
	8.2.4.5 FINAL SETUP (+)			
	8.2.4.6 HMG/HG SERVICE MODE	MODE SHIFT <=>	OFF <=> ON	
	8.2.4.7 CVT AUTO <=>			for technical analysis
	8.2.4.8 HDMI INTR POSITION (+)			
		INTR-POS1(0x75) <=>	000 to 255	for technical analysis
		INTR-POS2(0x76) <=>	000 to 255	for technical analysis
		INTR-POS3(0x77) <=>	000 to 255	for technical analysis
		INTR-POS4(0x78) <=>	000 to 255	for technical analysis

8.1.6 INDICATION (OSD) OF SERVICE FACTORY MODE

■ Indications in Service Factory mode



■ Main-item indications



①	Input function
②	SIG mode and Screen size
③	Color system and Signal type
④	Option

Input function	
Input function	OSD
VIDEO1-6	VD1-6
Terrestrial Wave A	ARA
Terrestrial Wave B	ARB
Cable A	CBA
Cable B	CBB
Home Gallery (Regular)	HG
Home Media Gallery (ELITE)	HMG
PC	PC

SIG mode and Screen size
Note: See SIG-Mode Tables.(See next page.)

Color system and Signal type		
Color system and signal type		OSD
NTSC	Composite input	NTV
	S-connector input	NTS
Y/CB/CR		CBR
Y/PB/PR		PBR
RGB		RGB
Digital video signal		DIG

Option(Destination, Panel Generation, etc)	
Options	OSD
SX System in North America(Regular)	ATB7
SX system in North America(ELITE)	AHB7

②SIG Mode and Screen Size (by User is displayed)

1-2nd Character: SIG-Mode (resolution)

3-4th Character: SIG-Mode (refresh rate)

5th Character: Setting of the screen size that user configured

■SIG-Mode table for video signals (resolutions and V frequencies)

1-4th Character		Signal Type	Vertical Frequency Fv (Hz)	Horizontal Frequency Fh (kHz)
10	60	SDTV*525i	60.000	15.750
20	60	SDTV*525p	60.000	31.500
30	60	HDTV*1125i	60.000	33.750
40	60	HDTV*750p	60.000	45.000
50	24	HDTV*1125p	24.000	27.000

■SIG-Mode table for PC signals (resolutions and V frequencies)

1-4th Character		Signal Type	Vertical Frequency Fv (Hz)	Horizontal Frequency Fh (kHz)
C1	70	720x400	70.087	31.469
C2	60	640x480	59.940	31.469
	72		72.809	37.861
	75		75.000	37.500
C4	56	800x600	56.250	35.1556
	60		60.317	37.879
	72		72.188	48.077
	75		75.000	46.875
C7	60	1024x768	60.004	48.363
	70		70.069	56.476
	75		75.029	60.023
C9	60	1360x768	60.015	47.712

■Selection of the screen size by the user is displayed.

5th Character	GUI Notation	VIDEO	PC	Remark
0	DOT BY DOT	×	●	
1	4:3	●	●	
2	FULL (FULL1)	●	●	
3	ZOOM	●	×	
4	CINEMA	●	×	
5	WIDE	●	×	
8	FULL2	●	●	

●: supported, ×: unsupported

8.2.1 INFORMATION

No.	Function/Display	Context	RS232C
1	VERSION(1)	The Flash memory versions for each device are displayed. (Common Part)	QS1
2	VERSION(2)	The Flash memory versions for each device are displayed. (Individual Part)	QS6
3	VERSION(3)		QS6
4	MAIN NG	The Shutdown Message ID/Event Times in Main Microcomputer are displayed.	QNG
5	TEMPERATURE	The Temperature/FAN rotating status are displayed.	QMT
6	HOURLY METER	The HOURLY METER/P-COUNT information are displayed.	QIP
7	HDMI SIGNAL INFO 1	The Information of HDMI information files are displayed.	-
8	HDMI SIGNAL INFO 2		-
9	VDEC SIGNAL INFO	Display the Signal Information on VDEC.	-
10	DTV TUNING STATUS 1	Digital broadcast information and status is displayed upon receiving digital broadcast signal.	-
11	DTV TUNING STATUS 2		-
12	DTV TUNING STATUS 3		-
13	DTV TV-GUIDE BER	TV-Guide Bit Error Rate Information	-
14	DEBUG INFO	Debug Information.	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40					
1	INFORMATION																VD1-30101-NTV-AHB7																											
2																																												
3	VERSION(1)																																											
4																																												
5	I/F																-07A																											
6	MAIN																-02K2																01K											
7	MULTI PRS																-02K																01A											
8																																												
9	MODULE																-06A																A 01A											
10	SEQ PRS																-03W																A 01A											
11																																												
12																																												
13																																												
14																																					P							
15																																												
16																																												

Flash Device	Item Name	Ex.		Elite	Regular
		Executed program part	BOOT part		
IF microcomputer	IF	-07A	-	○	○
MAIN microcomputer	MAIN	-02K2	01K	○	○
Multi processor	MULTI PRS	-02K2	01A	○	○
MODULE microcomputer	MODULE	-06A_A	01A	○	○
Sequence processor	SEQ PRS	-03W_A	01A	○	○

136

8.2.1.2 VERSION(2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1	I N F O R M A T I O N																C B A - 3 0 6 0 1 - D I G - A H B 7																							
2																																								
3	V E R S I O N (2)																																							
4																																								
5	D T V																																							
6					H A R D W A R E												X X X X X X X X																							
7					S E R I A L												0 1 2 3 4 5 6 7																							
8					R U N T I M E												X X X X X X X X																							
9					C F E												H H H H H H H H																							
10					K E R N E L												H H H H H H H H																							
11					R O O T F S												H H H H H H H H																							
12					F L A G S												H / W (Y)																							
13																	D V R (Y)												F O N T S (Y)											
14																	D F A S T (Y)												P L O G (Y)											
15																																								
16																																								

Flash Device	Item Name	Ex.	Elite	Regular
DTVHardware Version	HARDWARE	XXXXXXXXX	○	○
DTV Hardware Serial	SERIAL	1234567	○	○
DTV Runtime Version	RUNTIME	XXXXXXXXX	○	○
CFE Version	CFE	HHHHHHHHH	○	○
KERNEL Version	KERNEL	HHHHHHHHH	○	○
ROOTFS Version	ROOTFS	HHHHHHHHH	○	○
FLAGS	FLAGS	H/W (Y)	○	○
		DVR (Y) FONTS(Y)	○	○
		DFTS(Y) PLOG (Y)	○	○

8.2.1.3 VERSION(3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1	I N F O R M A T I O N															C B A - 3 0 6 0 1 - D I G - A H B 7																								
2																																								
3	V E R S I O N (3)																																							
4																																								
5	C C D															M S K B																								
6	H M G / H G															0 1 2 3 4 5 6 7 8 9																								
7	P A S S W O R D															1 2 3 4																								
8																																								
9																																								
10																																								
11																																								
12																																								
13																																								
14																																								
15																																								
16																																								

Flash Device	Item Name	Ex.	Elite	Regular
CCD-UCOM Version	CCD	MSKB	○	○
HMG/HG module Version	HMG/HG	0123456789	○	○
User Password	PASSWORD	1234	○	○

4.MAIN NG (Continued)

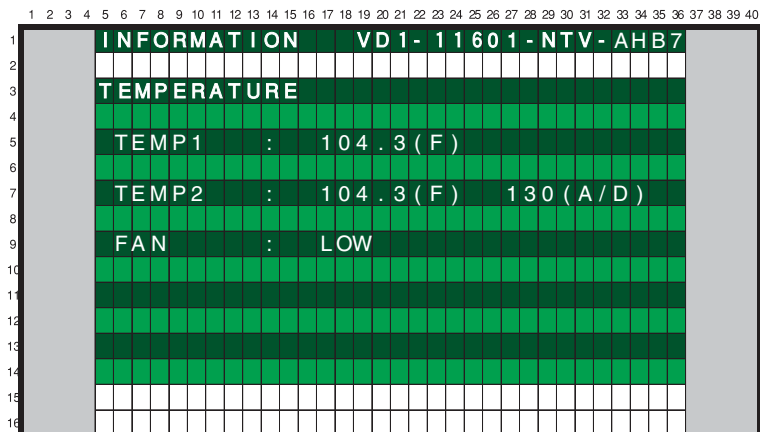
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	I N F O R M A T I O N																V D 1 - 3 0 6 0 1 - N T V - A H B 7																							
2	M A I N																N G																							
3																																								
4																																								
5																																								
6																																								
7																																								
8																																								
9																																								
10																																								
11																																								
12																																								
13																																								
14																																								
15	C L E A R																< = >														: N O									
16																																								

■ CLEAR Operation

Even if [←] key or [→] key is pushed, "CLEAR ⇔ YES" ⇔ "CLEAR ⇔ NO" is repeated.
If the [ENTER] key is kept on pressing for 5 second when the status of this menu is <YES>, clear process will begin.

8.2.1.5 TEMPERATURE

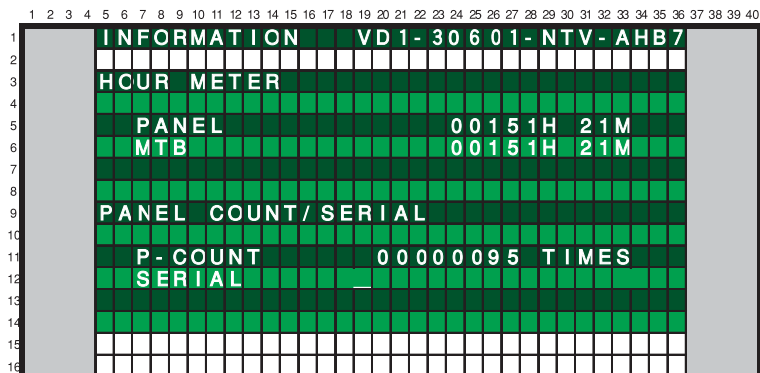
A A present temperature and the FAN rotation are displayed.
If either [←] key or [→] key is pressed, the display data is refreshed.



■ Display/Meaning

TEMP1 : The temperature of the sensor on the panel side is displayed by Fahrenheit (F).
TEMP2 : The temperature conversion display is done with 10bit the A/D input value of Main uCON 76PIN(AN0). It is displayed by both Fahrenheit (F) and 8bit A/D value.
(Remark: When temperature (C) of the sensor becomes more than a specified temperature, the shutdown start of processing.)
FAN : The value of the Fan rotating state is displayed.
STOP: stopped, LOW: slow speed, HIGH: high speed.

8.2.1.6 HOUR METER



■ Operation:

E In HOUR METER screen on Factory Menu, press the [ENTER] key, and then it moves to the screen to clear MTB HOUR METER.

■ Display / Meaning:

Meaning	Item Name	Ex.	RS-232C command
HOUR METER (PANEL)	PANEL	00151H 21M	QIP
HOUR METER (MTB)	MTB	00151H 21M	—
POWER ON COUNTER	P-COUNT	00000095 TIMES	QIP
SYSTEM SERIAL	SERIAL		QIP

8.2.1.8 HDMI SIGNAL INFO 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							
13																																							
14																																							
15																																							
16																																							

■ Displays input signal status of HDMI terminal.

Item	Meaning
H RES	Number of horizontal pixels (decimal)
V REES	Number of vertical lines (decimal)
H DE	Number of effectively horizontal pixels (decimal)
V DE	Number of effectively vertical lines (decimal)
INTRL	intetlace (=INT) or progressive(=PRG)
V POL	VSNC polarity
H POL	HSNC polarity
AUDIO (1 line)	sampling frequency (Ex. DVD : 48 kHz, CD : 44.1 kHz) *1
AUDIO (2 line)	PCM (PCM) or No PCM (=no PCM)
AUDIO (3 line)	Quantization bit
COL SP	color space (AVI Info) (422 or 444 or RGB) *2
COLMET	colormetry (AVI Info) (SD : 601, HD : 709) *2
ASPECT	aspect (AVI Info)
ACTIVE	video active format (AVI Info)
V FMT	video identification code (AVI Info)
PIX RP	pixel repeat value for 2880 dot
SOURCE (1line)	vender name of let-off device
SOURCE (2line)	model name of let-off device

*1 : Confirm if this item is displayed when the audio is not outputted.

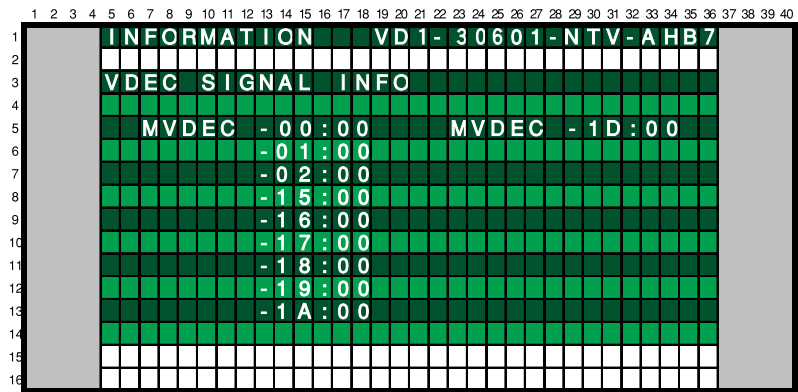
*2 : It may not match to the state of source devices when the color is abnormal.

Correspondence between the Display of HDMI FACTORY and the Resolution

Confirm the following 5 items when the video is not outputted.

Input Signal	Display of FACTORY				
	H RES	V RES	H DE	V DE	V FMT
480i (525i)	858	262 or 263	720	240	720x480i @ 60
480p (525p)	858	525	720	480	720x480p @ 60
1080i (1125i)	2200	562 or 563	1920	540	1920x1080i @ 60
720p (750p)	1650	750	1280	720	1280x720p @ 60

8.2.1.9 VDEC SIGNAL INFO



■ Displays input signal status of MVDEC terminal.

Device	SA	Context
MVDEC	00h	Signal distinct result 1
	01h	Signal distinct result 2
	02h	Flag detection output
	15h	Noise level distinction 1
	16h	Noise level distinction 2
	17h	Non-standard signal detection
	18h	Sub carrier signal detection
	19h	ACC data output
	1Ah	ACC information output
	1Dh	Input signal mode

8.2.1.10 DTV TUNING STATUS 1

A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							
13																																							
14																																							
15																																							
16																																							

B

8.2.1.11 DTV TUNING STATUS 2

C

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							
13																																							
14																																							
15																																							
16																																							

D

8.2.1.12 DTV TUNING STATUS 3

E

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							
13																																							
14																																							
15																																							
16																																							

Displays digital broadcast signal information and status upon receiving digital signal.

8.2.1.13 DTV TV-GUIDE BER

Exclusively used for production line. TV-Guide error bit ratio information is displayed.

F 8.2.1.14 DEBUG INFO

Exclusively used for technical analysis. Debug information for development use is displayed.

■ Operation Items

This is the menu screen for the adjustment of the panel. Data acquisition and value adjustment can be performed for the following items:

No.	Indication	Description of functions
8.2.2.1	PANEL INFORMATION	Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed.
8.2.2.2	PANEL WORKS	Operation data, such as accumulated pulse-meter count, accumulated hour-meter count, accumulated power-on count, and the temperature detected by the sensor, are displayed.
8.2.2.3	POWER DOWN	The power-down history is displayed, with the hour-meter values that indicate the hour values when power-downs occurred.
8.2.2.4	SHUT DOWN	The shutdown history is displayed, with the hour-meter values that indicate the hour values when shutdowns occurred.
8.2.2.5	PANEL-1 ADJ (+)	Settings of the driving pulse timing and driving voltage can be performed.
8.2.2.6	PANEL-2 ADJ (+)	White balance and ABL (power consumption) for the panel can be set.
8.2.2.7	PANEL REVISE (+)	The level for correction of panel degradation can be set.
8.2.2.8	ETC. (+)	Copying of backup data and clearance of various data can be performed.
8.2.2.9	RASTER MASK SETUP (+)	The mask indication (RASTER) can be set and indicated.
8.2.2.10	PATTEN MASK SETUP (+)	The mask indication (PATTERN) can be set and indicated.
8.2.2.11	COMBI MASK SETUP (+)	The mask indication (COMBI) can be set and indicated.

A

- In the following examples, GUI images for a 50-inch model are indicated. Although the display areas for the menu for 42-inch and 50-inch models are different, the items to be displayed are the same.

8.2.2.1 PANEL INFORMATION

- Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed. No other layers are nested below this layer, and there are no adjustment items.

	1	5	10	15	20	25	30	32																									
1			P	A	N	E	L	F	A	C	T	.			I	N	1	-	3	0	6	0	2	-	R	G	B	-	J	W	M	7	
			A	R	E	A	1	P	A	N	E	L	I	N	F	O	R	M	A	T	I	O	N										
5								M	O	D	U	L	E			-	0	1	A											0	1	A	
								S	E	Q	-	P	R	G		-	0	1	Y											0	2	A	
								V	D	-	S	E	Q				5	2	0	Y													
								P	C	-	S	E	Q				5	2	0	Y													
10								S	E	R	I	A	L			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
								D	I	G	.	E	E	P			A	D	J	U	S	T	E	D									
								B	A	C	K	U	P				N	O		D	A	T	A	I									
15																																	
16																																	

<

■ Key operation

- <DOWN> : Shifting to PANEL WORKS
<UP> : Shifting to COMBI MASK SETUP
(+)
<L/R> : Updating displayed information

■ **Display items:**

- MODULE : The version of data written in the Module microcomputer (IC3151) is indicated.
 SEQ-PRG : The version of data written in the Sequence Program Storage Memory (IC3301) is indicated.
 VD-SEQ : The Drive Sequence version for Video mode is indicated.
 PC-SEQ : The Drive Sequence version for PC mode is indicated.
 SERIAL : The serial number of the module is indicated.
 DIG.EEP : The adjusted status of the EEPROM that is mounted on the DIGITAL Assy is indicated.
 BACKUP : The adjusted status of the EEPROM for backup that is mounted on the SENSOR Assy is indicated.

8.2.2.2 PANEL WORKS

- Data on operations, such as the accumulated pulse-meter counts, hour-meter count, power-on count, and temperature detected by the sensor, are sent back. No other layers are nested below this layer, and there are no adjustment items.

[illegible]

■ Key operation

- <DOWN> : Shifting to POWER DOWN
<UP> : Shifting to PANEL INFORMATION
<L/R> : Updating displayed information

- Temperature unit is " °C (Centigrade) ".

■ Contents of the Display item

- PM-B1 to B5: The accumulated pulse-meter counts for the 5 blocks on the screen are indicated. (the lowest-order digit represents millions of pulses.)
- HR-MTR: The hour-meter value (accumulated power-on hours) is indicated.
- P-COUNT: The accumulated power-on count is indicated.
- TEMP1: The current panel temperature and the historical maximum temperature recorded in memory are indicated. The range of temperature indication is from -50.0 to +99.9. (The temperature unit is " °C (Centigrade) ").

8.2.2.3 POWER DOWN

- The power-down history is displayed. The last most 8 power-down histories are displayed with the hour-meter values that indicate the hours when power-downs occurred. No other layers are nested below this layer, and there are no adjustment items.

		1	5	10	15	20	25	30	32
1		PANEL	FACT.		IN1-30602-RGB-JWM7				
	AREA 1	POWER	DOWN						
2		1ST		2ND		000124H	23M		
3									
4		1X-DRV				000124H	21M		
5		2Y-SUS		SQ-NON		000115H	05M		
6		3SCAN				000107H	53M		
7		4POWER		SCAN		000098H	47M		
8		5ADRS				000051H	30M		
9		6SCAN5V		X-DCDC		000022H	21M		
A		7Y-DCDC				000000H	57M		
B		8							
C									
D									
E									

■ Key operation

- <DOWN> : Shifting to SHUT DOWN
- <UP> : Shifting to PANEL WORKS
- <L/R> : Updating displayed information

<Causes of power-down and corresponding OSD indications>

Cause of power-down	OSD Indication	Cause of power-down	OSD Indication
POWER SUPPLY Unit	P-PWR	ADDRESS Assy	ADRS
SCAN Assy	SCAN	X DRIVE Assy	XDRV
5V power for SCAN Assy	SCAN5V	DC/DC converter for X drive	X-DCDC
Y DRIVE Assy	YDRV	X-drive SUS circuit	X-SUS
DC/DC converter for Y drive	Y-DCDC	Specification inability	UNKNOWN
Y-drive SUS circuit	Y-SUS		

- * When power-down is confirmed, the factor is displayed as "1st", "2nd", according to the accuracy order.
- * The power-down history is not recorded when the power-down occurred at the same place and same time.

8.2.2.4 SHUT DOWN

- The shutdown history is displayed. The last most 8 shutdown histories are displayed with the hour-meter values that indicate the hours when shutdowns occurred. No other layers are nested below this layer, and there are no adjustment items.

		1	5	10	15	20	25	30	32
1		PANEL	FACT.		IN1-30602-RGB-JWM7				
	AREA 1	SHUT	DOWN						
2		MAIN		SUB		000124H	23M		
3									
4		1TMP-NG		TEMP1		000124H	21M		
5		2SQ-IC		SQNO/L		000115H	05M		
6		3MD-IIC		EEPROM		000107H	53M		
7		4SQ-IC		VER-LR		000098H	47M		
8		5MD-IIC		BACKUP		000051H	30M		
9		6SQ-IC		SEP-IC		000012H	07M		
A		7							
B		8							
C									
D									
E									

■ Key operation

- <DOWN> : Shifting to PANEL-1 ADJ (+)
- <UP> : Shifting to POWER DOWN
- <L/R> : Updating displayed information

- * When there is detail information when shutdown occurred, the possible defective part is displayed as Sub information.

<Causes of shut-down and corresponding OSD indications>

Cause of shut-down (MAIN)		Subcategory of Cause of shut-down (SUB)	
Item	OSD Indication	Item	OSD Indication
Drive Sequence Processing IC	SQ-IC	Communication Error	RTRY
		Drive Sequence Stop	SQNO
		Communication Busy	BUSY
		Version Mismatching	VER-HS
MDU-IIC	MD-IIC	MAIN EEPROM Communication Error	EEPROM
		BACKUP EEPROM Communication Error	BACKUP
		DAC Communication Error	DAC
High temperature of the panel	TMP-NG	Temperature NG	TEMP

8.2.2.5 PANEL-1 ADJ (+)

- Timing and voltage for the driving pulse are set. At third line of the screen, the WB (White Balance) table and frequency table indicating operation status are displayed, and at fifteenth line of the screen, the item for the upper nested layer (PANEL-1 ADJ [+]) is displayed. Pressing the SET key shifts the screen to the next nested layer below for item selection.

			1		5		10		15		20		25		30	32			
1			PANEL FACT. IN1-30602-RGB-JWM7																
		AREA 1	[TBL1 / 60VS]																
		2																	
		3																	
		4																	
5		5																	
		6																	
		7																	
		8																	
10		9																	
		A																	
		B																	
		C																	
		D	PANEL-1 ADJ (+)																
15		E																	
16																			

■ Key operation

- <DOWN> : Shifting to PANEL-2 ADJ (+)
- <UP> : Shifting to SHUT DOWN
- <SET> : Shifting to the next nested layer

- When the screen is shifted to the next nested layer below, the item of the layer above is indicated at third line of the screen, and the item of the layer below is indicated at fifteenth line.
- The configuration of the menu screen is the same for any adjustment item that has lower layers.

			1	5	10	15	20	25	30	32																							
1			PANEL FACT.										IN1-30602-RGB-JWM7																				
	AREA 1	PANEL-1 ADJ										[--- / 60VS]																					
	2																																
	3																																
	4																																
5	5																																
	6																																
	7																																
10	8																																
	9																																
	A																																
	B																																
	C																																
15	D	VOL OFFSET										< = >												: 128									
16	E																																

■ Key operation

- <DOWN> : Shifting to the next item
- <UP> : Shifting to the previous item
- <RIGHT> : Adding by one to the adjustment/setting value
- <LEFT> : Subtracting by one from the adjustment/setting value
- <VOL+> : Adding by 10 to the adjustment/setting value
- <VOL-> : Subtracting by 10 from the adjustment/setting value
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

8.2.2.6 PANEL-2 ADJ (+)

- White balance can be adjusted by adjusting R, G, and B gain. Pressing the SET key shifts the screen to the next nested layer below for item selection.

		1	5	10	15	20	25	30	32
1		PANEL FACT.				IN1-30602-RGB-JWM7			
2	AREA 1							[TBL1/60VS]	
3									
4									
5									
6									
7									
8									
9									
10									
11	A								
12	B								
13	C								
14	D	PANEL-2 ADJ (+)							
15	E								
16									

■ Key operation

- <DOWN> : Shifting to PANEL REVISE (+)
- <UP> : Shifting to PANEL-1 ADJ (+)
- <SET> : Shifting to the next nested layer

		1	5	10	15	20	25	30	32
1		PANEL FACT.				IN1-30602-RGB-JWM7			
2	AREA 1	PANEL-2 ADJ						[TBL1/60VS]	
3									
4									
5									
6									
7									
8									
9									
10									
11	A								
12	B								
13	C								
14	D	R-HIGH <=>						: 256	
15	E								
16									

■ Key operation

- <DOWN> : Shifting to the next item
- <UP> : Shifting to the previous item
- <RIGHT> : Adding by one to the adjustment/setting value
- <LEFT> : Subtracting by one from the adjustment/setting value
- <VOL+> : Adding by 10 to the adjustment/setting value
- <VOL-> : Subtracting by 10 from the adjustment/setting value
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

8.2.2.7 PANEL REVISE (+)

- A A setting for panel degradation correction can be made. Pressing the SET key shifts the screen to the next nested layer below for item selection.

■ Key operation

- <DOWN> : Shifting to ETC.(+)
- <UP> : Shifting to PANEL-2 ADJ (+)
- <SET> : Shifting to the next nested layer

■ Key operation

- <DOWN> : Shifting to the next item
- <UP> : Shifting to the previous item
- <RIGHT> : Adding by one to the adjustment/setting value
- <LEFT> : Subtracting by one from the adjustment/setting value
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

8.2.2.8 ETC. (+)

- The setting about the backup of panel adjusting value and various data on panel operational information can be cleared. Pressing the SET key shifts the screen to the next nested layer below for item selection.

[illegible]

■ Key operation

<DOWN> : Shifting to RASTER MASK SETUP
(+)

<UP> : Shifting to PANEL REVISE (+)

<SET> : Shifting to the next nested layer

			1	5	10	15	20	25	30	32
1		PANEL FACT.					IN1-30602-RGB-JWM7			
	AREA 1	ETC.					[TBL1 / 60VS]			
	2									
	3									
	4									
	5									
	6									
	7									
10	8									
	9									
	A									
	B									
	C									
15	D	BACKUP DATA <=>					: NO OPRT			
16	E									

■ Key operation

<DOWN> : Shifting to the next item

<UP> : Shifting to the previous item

<RIGHT> : Adding by one to the adjustment/
setting value

<LEFT> : Subtracting by one from the adjustment/setting value

<SET> : Determining the adjustment/setting value and shifting to the upper layer

8.2.2.9 RASTER MASK SETUP (+)

- This menu set the RASTER MASK and the drive sequence at RASTER MASK state. Pressing the SET key shifts the screen to the next nested layer below for item selection.

[illegible]

■ Key operation

<DOWN> : Shifting to PATTEN MASK SETUP
(+)

<UP> : Shifting to ETC. (+)

<SET> : Shifting to the next nested layer

[illegible]

■ Key operation

<DOWN> : Shifting to the next MASK

<UP> : Shifting to the previous MASK

<RIGHT> : Changing MASK sequence (+)

<LEFT> : Changing MASK sequence (-)

<SET> : Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

8.2.2.10 PATTEN MASK SETUP (+)

- This menu set the PATTEN MASK and the drive sequence at PATTEN MASK state.

[illegible]

■ Key operation

- <DOWN> : Shifting to COMBI MASK SETUP (+)
 <UP> : Shifting to RASTER MASK SETUP (+)
 <SET> : Shifting to the next nested layer

[illegible]

■ Key operation

- <DOWN> : Shifting to the next MASK
 <UP> : Shifting to the previous MASK
 <RIGHT> : Changing MASK sequence (+)
 <LEFT> : Changing MASK sequence (-)
 <SET> : Determining the adjustment/setting
 value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

8.2.2.11 COMBI MASK SETUP (+)

- A • This menu set the COMBI MASK and the drive sequence at COMBI MASK state.

				1		5		10		15		20		25		30	32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
1				P	A	N	E	L	F	A	C	T	.					I	N	1	-	3	0	6	0	2	-	R	G	B	-	J	W	M	7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
				AREA 1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

■ Key operation

- <DOWN> : Shifting to PANEL INFORMATION
 <UP> : Shifting to PATTEN MASK SETUP
 (+)
 <SET> : Shifting to the next nested layer

				1		5				10				15					20					25				30		32					
1				P	A	N	E	L	F	A	C	T	.			I	N	1	-	3	0	6	0	2	-	R	G	B	-	J	W	M	7		
			AREA 1	C	O	M	B	I	M	A	S	K	S	E	T	U	P								[T	B	L	1	/	6	0	V	S]
			2																																
			3																																
			4																																
			5																																
			6																																
			7																																
10			8																																
			9																																
			A																																
			B																																
			C																																
15			D	C	M	B	I	M	A	S	K	S	E	T	U	P	(+)																
16			E																																

■ Key operation

- <DOWN> : Shifting to the next MASK
 <UP> : Shifting to the previous MASK
 <RIGHT> : Changing MASK sequence (+)
 <LEFT> : Changing MASK sequence (-)
 <SET> : Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

8.2.3 OPTION MODE

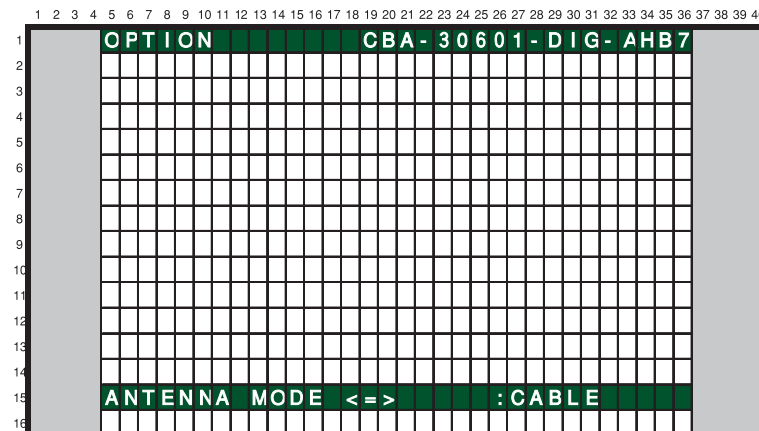
■ Operation item

No.	Function/Display	Content	RS232C
1	EDID WRITE MODE ⇔	DISABLE ⇔ ENABLE	-
2	ANTENNA MODE ⇔	CABLE ⇔ AIR	-
3	AFT ⇔	Controls AFT action by turing ON / OFF	-

8.2.3.1 EDID WRITE MODE

Exclusively used for production line.

8.2.3.2 ANTENNA MODE



Receiving Cable/Air signal with equipped/unequipped DTB tuner.

① When DTV tuner is equipped

It is effective during tuner function only (others are gray-downed). The currently viewed ANT A/ANT B function's cable/air (both analog and digital) signal are changed. The channel settings are memorized (memorized by DTV side).

② When DTV tuner is unequipped

It is possible for ANT A/ANT B function to receive air/cable signal.

Channel settings are not memorized. But after leaving factory mode, the settings are maintained.

If the air/ cable signal is changed, the reserved allocation map is written.

For example, if the signal is changed to air, then the air's broadcast map is configured, and cable's broadcast map is destroyed.

If the signal is changed to cable, then the cable's broadcast map is configured, and air's broadcast map is destroyed.

OSD display	Function	Control device
CABLE	Change the antenna setting to cable	
AIR	Change the antenna setting to air	

8.2.3.3 AFT

Exclusively used for production line.

A

■Operation item

No.	Display	Content	RS232C
1	SYNC DET(+)	Exclusively used for technical analysis.	-
2	SG MODE	Paired SG_MODE with SG_PATTERN. Select SG Route.	-
3	SG PATTERN	Paired SG_MODE with SG_PATTERN. Select SG Pattern.	-
4	SIDE MASK LEVEL(+)	Configure the color of the side mask.	BSL GSL RSL
5	FINAL SETUP(+)	Initialize flash memorys on virgin product status	FST
6	HMG/HG SERVICE MODE	Enter HMG/HG SERVICE MODE	-
7	CVT AUTO	Exclusively used for technical analysis.	-
8	HDMI INTR POSITION(+)	Exclusively used for technical analysis.	-

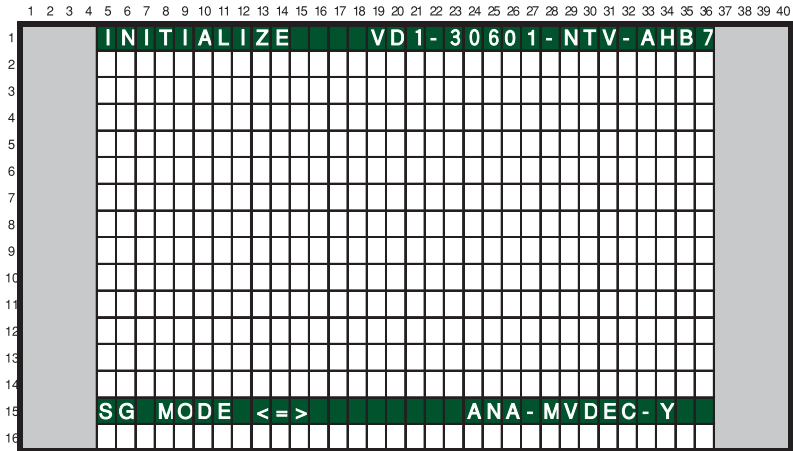
Note : When there is an altered history due to an open TRAP SW, if the "DISPLAY" key is held for at least 5 seconds on the above menu, the altered history will be cleared and the unit will be back to normal.

8.2.4.1 SYNC DET(+)

Exclusively used for technical analysis (details omitted).

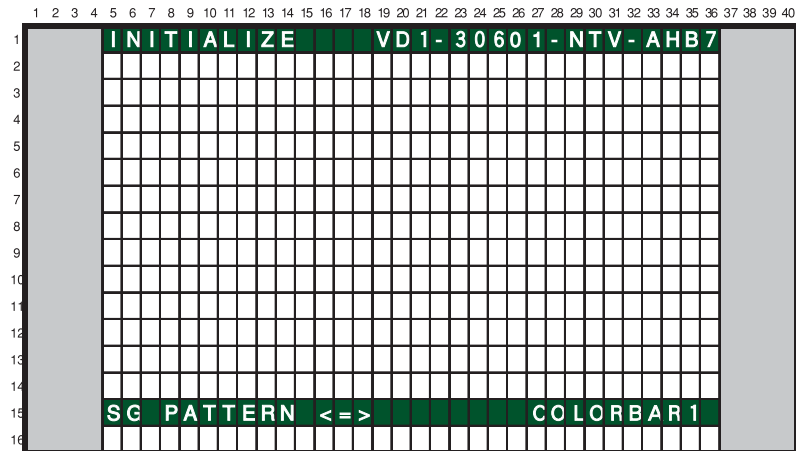
C8.2.4.2 SG MODE

SG MODE (SG's route selection)/SG PATTERN (signal pattern selection) are used as pair.
In SG MODE, select the SG route and then select the SG pattern to be sent by the selected route. In SG MODE, make sure to select the route first.



No.	Display	Content
1	SG OFF	SG Mode is OFF.
2	DIG MVDEC YCBCR	MAIN VDEC: YCbCr (Digital output mode)
3	ANA MVDEC YCBCR	MAIN VDEC: YCbCr (Analog output mode)
4	ANA MVDEC Y	MAIN VDEC: Y (Analog output mode: SG VDEC return setting)
5	ANA AD YCBCR	AD: YCbCr
6	ANA AD RGB	AD: RGB

8.2.4.3 SG PATTERN

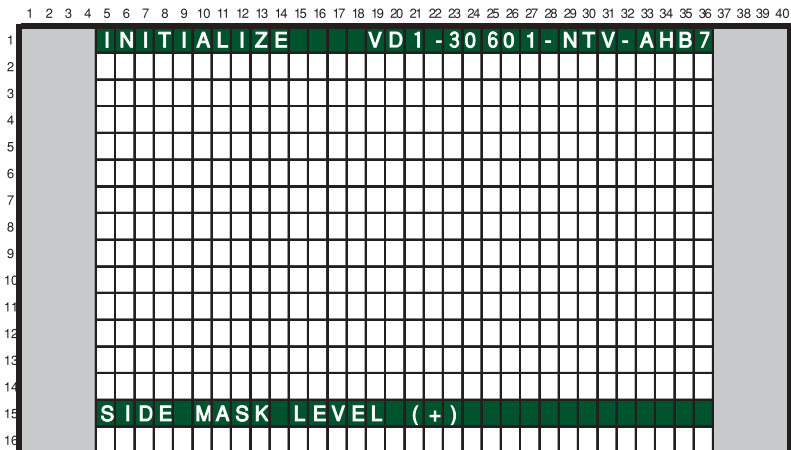


No.	Function/Display	SG Pattern(Brightness IRE Level/Color)
1	COLOR BAR1	Colorbar (75%)
2	COLOR BAR2	Colorbar (100%)
3	RAMP1	Ramp (100% white)
4	RAMP2	Ramp (100% Yellow)
5	RAMP3	Ramp (75% Green)
6	RAMP4	Ramp (75% Red)
7	RAMP5	Ramp (75% Blue)
8	RASTER1	Raster (100% White)
9	RASTER2	Raster (75% Yellow)
10	RASTER3	Raster (75% Cyanide)
11	RASTER4	Raster (75% Green)
12	RASTER5	Raster (75% Magenta)
13	RASTER6	Raster (75% Red)
14	RASTER7	Raster (75% Blue)
15	RASTER8	Raster (-% Black)
16	10STEP1	10STEP (100% white)
17	10STEP2	10STEP (100% Yellow)
18	10STEP3	10STEP (75% Green)
19	10STEP4	10STEP (75% Red)
20	10STEP5	10STEP (75% Blue)

■Notes when using SG MODE/SG PATTERN

- During factory mode, choose the correct route when changing.
- Basically, during VDEC SG output, make sure to connect SG output's Y or G to the AVI input terminal of VDEC.
- During SG MODE, turn off the blanking 50IRE setup function.
- During VDEC SG output, set the YC separation setting to NTSC.
- It is possible to use ANALOG OUT MODE together during DIGITAL OUT MODE.
The Main VDEC can output digital color difference, in which colors will appear. But the route to VDEC input cannot be analysed therefore care should be taken when using.
Depending on the situation, please use the proper analog/digital output.
- The SG MODE outputs color difference and RGB only. Therefore, in the case of CVBS, only the Y input is used resulting in no color. This is not a damage result nor error.
- The SG MODE's ANA AD RGB (route to input 525i to AD by RGB) as a set's route, the setting does not exist. For this account the latter part from MVDEC does not have set values, resulting in having funny colors in colorbar, the brightness changes after switching, etc.
This is not a damage result nor error.
- Depending on MVDEC's part version, ANA_MVDEC_YCBCR may not display colors.

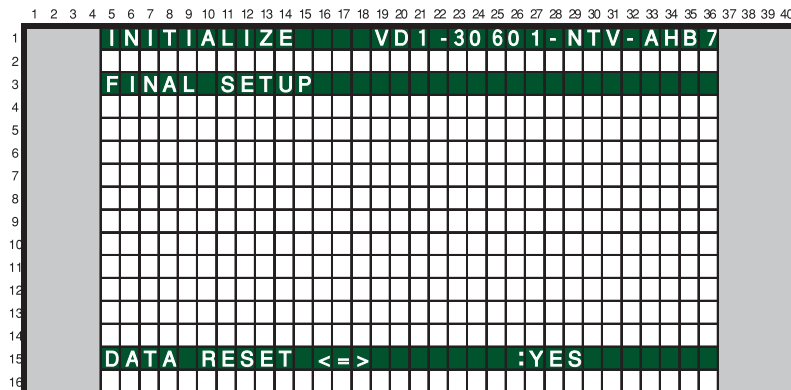
8.2.4.4 SIDE MASK LEVEL



To configure sidemask's R, G, B level (To adjust the values, input signal is required).

No.	Display	Content	RS232C
1	R MASK LEVEL ⇄	Adjust Side Mask R (Initial value : 80, Adjustable range: 000-255)	RSL
2	G MASK LEVEL ⇄	Adjust Side Mask G (Initial value : 80, Adjustable range: 000-255)	GSL
3	B MASK LEVEL ⇄	Adjust Side Mask B (Initial value : 80, Adjustable range: 000-255)	BSL

8.2.4.5 FINAL SET UP



To reset each memory value to factory default values. Factory command is "FST".
 When the configuration is set to <NO> and the [SET] key is pressed, no action is taken and the menu returns to previous screen.
 When the configuration is set to <YES> and the [SET] key is pressed for 5 seconds, the reset action executes.

Be sure to disconnect and connect the Power cord after the FINAL SETUP.
When replacing the MAIN ASSY, the FINAL SETUP is required.

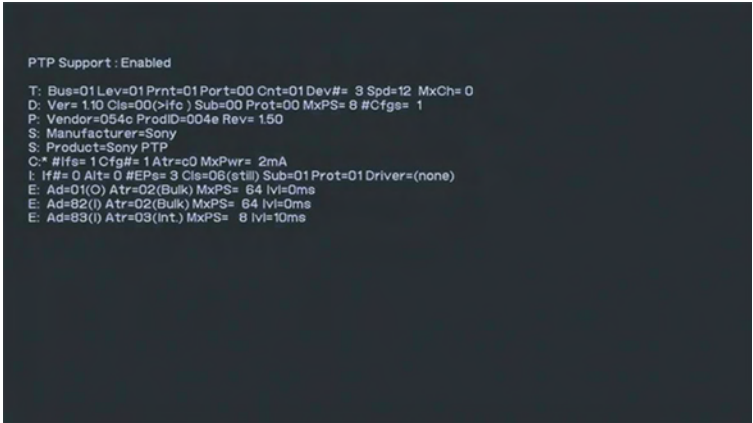
8.2.4.6 HMG/HG SERVICE MODE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							
13																																							
14																																							
15																																							
16																																							

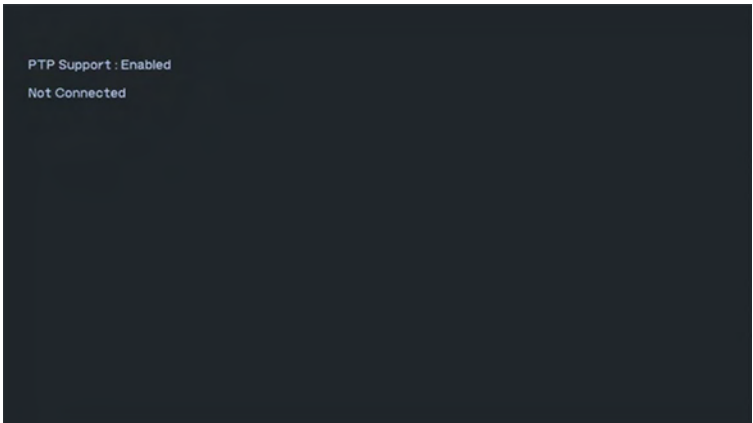
The value of all memorized data are set to shipment status.
If the [ENTER] key is kept on pressing for 5 second when the status of this menu is <YES>, HMG/HG SERVICE mode will be done.

For ELITE model
Be sure to do above procedure at input fuction except HMG.

- 2nd FACTORY MODE
 - [Home Gallery] (Regular Model)
 - 1. Home Gallery Screen
 - (1) When the device is connected



- (2) When the device is not connected



(3) Each item explanation (Example)

```

① PTP Support : Disabled
②
③ T: Bus=03 Lev=01 Prnt=01 Port=00 Cnt=01 Dev#= 2 Spd=480 MxCh= 0
④ D: Ver= 2.00 Cls=00(>ifc ) Sub=00 Prot=00 MxPS=64 #Cfgs= 1
⑤ P: Vendor=0dda ProdID=2026 Rev= 1.4f
⑥ S: Manufacturer=ICSI
⑦ S: Product=USB2.0 Card Reader
⑧ S: SerialNumber=0000001
⑨ C:* #Ifs= 1 Cfg#= 1 Atr=80 MxPwr=500mA
⑩ I: If#= 0 Alt= 0 #EPs= 2 Cls=08(stor.) Sub=06 Prot=50 Driver=usb-storage
⑪ E: Ad=82(I) Atr=02(Bulk) MxPS= 512 IvI=0ms
E: Ad=01(O) Atr=02(Bulk) MxPS= 512 IvI=0ms

```

① PTP Support

Disable	PTP Non-Support	String
Enable	PTP Support	String

② T (Topology info)

Bus	Bus Number	Decimal
Lev	Level in topology for this bus	Decimal
Prnt	Parent Device Number	Decimal
Port	Connector/Port on Parent for this device	Decimal

Cnt	Count of devices at this level	Decimal
Dev#	Device Number	Decimal
Spd	Device Speed in Mbps	Decimal
MxCh	Max Children	Decimal

③ D (Device descriptor info)

Ver	Device USB version	Hexadecimal
Cls	Device Class	Hexadecimal
Sub	Device Sub Class	Hexadecimal
Prot	Device Protocol	Hexadecimal
MxPS	Max Packet Size of Default Endpoint	Decimal
#Cfgs	Number Configurations	Decimal

④ P (Product ID info)

Vendor	Vendor ID code	Hexadecimal
ProdID	Product ID code	Hexadecimal
Rev	Product revision number	Hexadecimal

⑤ S (String descriptor info - 1)

Manufacturer	String
--------------	--------

⑥ S (String descriptor info - 2)

Product	String
---------	--------

⑦ S (String descriptor info - 3)

SerialNumber	String
--------------	--------

⑧ C (Configuration descriptor info)

#Ifs	Number of Interfaces	Decimal
#Cfg	Configuration Number	Decimal
Atr	Attributes	Hexadecimal
MxPwr	MaxPower in mA	Decimal

⑨ I (Interface descriptor info)

If#	Interface Number	Decimal
Alt	Alternate Setting Number	Decimal
#Eps	Number of Endpoints	Decimal
Cls	Interface Class	Hexadecimal(String)
Sub	Interface Sub Class	Hexadecimal
Prot	Interface Protocol	Hexadecimal
Driver	Driver name	String

⑩ E (Endpoint descriptor info)

⑪ E (Endpoint descriptor info)

Ad	Endpoint Address (I=In, O=Out)	Hexadecimal(String)
Atr	Attributes	Hexadecimal(String)
MxPS	Endpoint Max Packet Size	Decimal
IvI	Interval (max) between transfers	Decimal

2. End method

It is the same as the case that Home Gallery displays.

9. LIST OF RS-232C COMMANDS

9.1 RS-232C COMMANDS OUTLINE

9.1.1 PREPARED TOOLS

It is necessary to prepare the following tools to use RS-232C command.

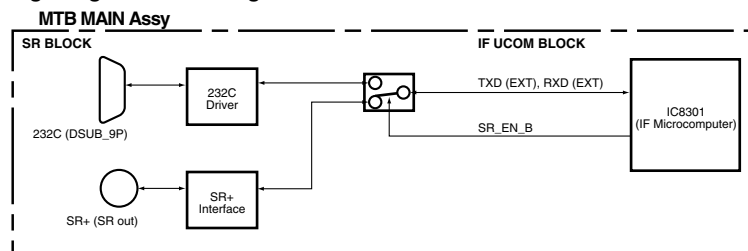
- PC
- Application for control
- 232C cable (straight)

- * It is not likely to operate correctly in Win98 function/ ME and Win for foreign countries.
- * The setting of the Com port cannot be communicated if it has not been done correctly.
(Please follow a operating instructions of the PC about the Com port.)

9.1.2 USING RS-232C COMMANDS

For the PDP-4271HD/KUCXC, PDP-5071PU/KUCXC, PRO-940HD/KUCXC and PRO-1140HD/KUCXC series Plasma Displays, the circuitry is structured as shown in the diagram below to support the SR+ system. Controlling with either the SR+ system or RS-232C commands can be selected. As the SR+ system is selected at shipment, to control with RS-232C commands in servicing it is necessary to switch the paths. After servicing, be sure to return the setting to the SR+ system.

● Rough diagram of switching between SR+ and RS-232C



■ How to switch SR+/RS-232C ?

There are "How to switch SR+/RS-232C by remote control in Standby Mode" and "How to switch SR+/RS-232C by remote control in the INTEGRATOR MENU" as a Method

① To select SR+/RS-232C by remote control in Standby Mode

During Standby mode, the following operation is done within 10 seconds.

To select from SR+ to RS-232C/To select from RS-232C to SR+

During standby mode, hold the [VOLUME+(or-)] key on the remote control unit pressed for 3-10 seconds. →Then within 3 seconds after the key is released, hold the [2-screen] key released, use the [SET(ENTER)] key on the remote control unit to set to RS-232C(the baud rate last selected is chosen) or the [HOME MENU] key to set to SR+

During IF Standby mode (once 10 seconds or more has passed after the LED goes dark during communication), the first key press may not be accepted. In such a case, for a key operation, first press any key other than the [POWER] key and [CH] keys, then the desired key.

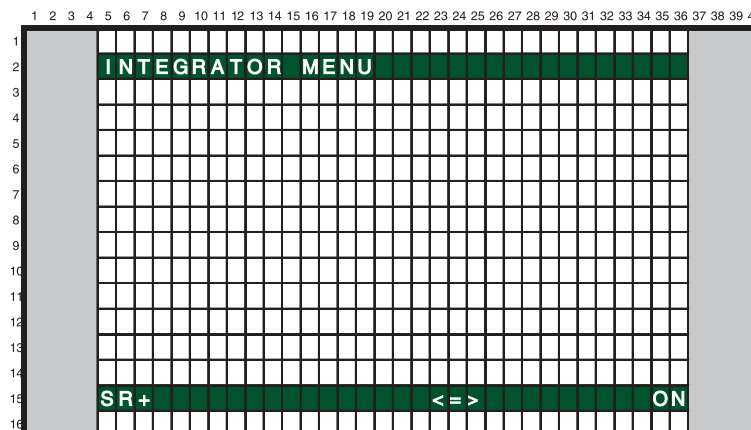
At the switch SR+/RS-232C, the LED will be blinked on the fixed time.

② To select SR+/RS-232C in the INTEGRATOR MENU

How to enter INTEGRATOR MENU.

During standby mode, press the [Home Menu] key, and then press the [POWER] key within 3 seconds. Or during Factory mode, hold the [INTEGRATOR] key.

In INTEGRATOR MENU, there is a OSD where SR+(or RS-232C) is turned on/off, and it switches on the screen.



9.1.3 COMMAND PROTOCOL

■ Communication protocol : Asynchronous serial communication by RS-232C

Start bit length : 1 bit
 Data width : 8 bit (ASCII code/ no distinction between upper case and lower case)
 Parity : None
 Stop bit length : 1 bit
 Baud rate : 1200/2400/4800/19200/38400 bps (Initial value : 9600 bps)

■ Adjustment function

Direct effectivity of numbers : When a number is transmitted after a command, an adjustment value can be directly set.

■ Data format

The format of the control signal transmitted from the user side controller is as described below.

STX (02Hex) is arranged at the time of communication start and ETX (03Hex) is arranged at the time of data transmission complete, and ID, command and parameter are arranged in between. Data consists of ASCII type alphanumeric characters, and there is no distinction between the upper case and the lower case.

● In the case of command only
 [single function command]

STX	ID	Command	ETX
0x02	**	□□□	0x03

● When setting/adjustment data is accompanied
 [setting/adjustment command]

STX	ID	Command	Parameter	ETX
0x02	**	□□□	△△△	0x03

■ Command processing

Command processing starts as soon as the command is entered.

ID shall be the two asterisks, "**".

■ Confirmation of reception

The module microcomputer will make judgment to the command received from the main side, and if the command is judged to be an effective one, processing will be executed. When the system is in the standby status for the next command after completion of the processing, a reply to the received command is sent out. The data to be responded is a data in the upper case after deleting the ID code from the received command.

● When setting/adjustment data is accompanied

Data transmitted from PC

STX	ID	Command	Parameter	ETX
0x02	**	□□□	△△△	0x03

Reply data

STX	Command	Parameter	ETX
0x02	□□□	△△△	0x03

● In the case of command only

Data transmitted from PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

Reply data

STX	Command	ETX
0x02	□□□	0x03

When responding, ERR is sent back if the command is unknown, and XXX is sent back if the command itself is valid but it cannot be processed because of its status.

● In the case of invalid command

Data transmitted from PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

Reply data

STX	Command	ETX
0x02	ERR	0x03

● In the case of a command not executable due to its status

Data transmitted from PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

Reply data

STX	Command	ETX
0x02	XXX	0x03

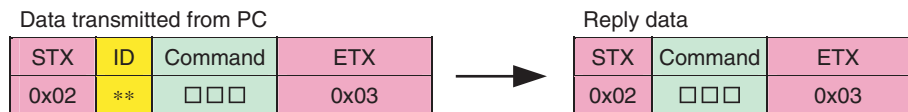
■ Processing in the case of an error

If a communication error occurs between STX and ETX, processing of that command is stopped, and the reception buffer is cleared.

In the command reception process, the character string transmitted after the receipt of STX are continued to be stored in the register, and by receipt of ETX, the character string sandwiched between STX and ETX is recognized as a command. If the prepared character string storage buffer (24 bytes including STX, ID and ETX) is exceeded, a reply will not be sent out.

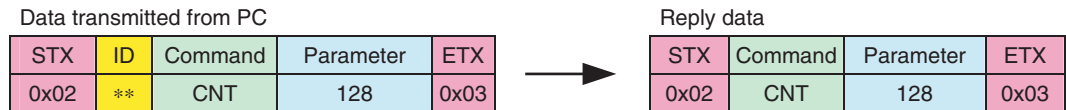
Single function command

It is a command that a command alone will complete an operation, and the command section consists of three characters.



Adjustment command and adjustment value

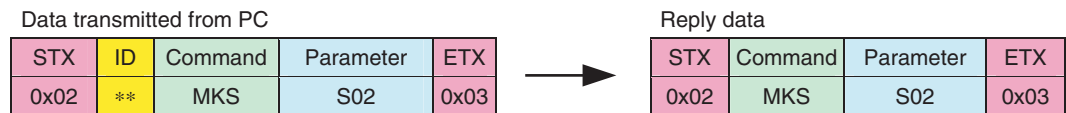
It is a command, accompanied by an adjustment value, to change the parameter value, and the command section is also three characters as in the case of a single function command. The adjustment value is a three character decimal numerical data within the range of 000-999. Incidentally, the adjustable range will be different depending on the function to be adjusted. (Be careful as it is not always up to 999.)



- * XXX will be transmitted if the received command is exceeding the adjustable range of the adjustment value.
- * When the same setting value is transmitted consecutively for two times or more, the setting is overwritten without responding with XXX even though the command is invalid, and an ACK after deleting the ID is sent back.

Setting command and setting value

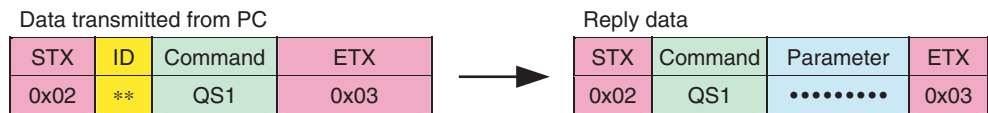
It is a command, accompanied by a setting value, to change the setting value of the parameter, and the command section consists of three characters. The setting value consists of three characters, and the first character is fixed to S and the remaining two characters are decimal numbers within the range of S00-S99.



- * XXX will be transmitted if the received command does not exist as a setting value.
- * When the same setting value is transmitted consecutively for two times or more, the setting is overwritten without responding with XXX even though the command is invalid, and an ACK after deleting the ID is sent back.

Status acquisition (QUEST) command

This is a command to report the operational status and the setting value to the system side.
 When a command is received from the system side, an applicable content depending on the type of command is read out from the memory and sent back.
 The command section consists of three characters, and the first character is fixed to Q. The second character and on are set depending on the content of the information.
 When sending back a reply data, the received command, various data converted to ASCII code and checksum of that data are added and sent.
 The data length will be subject to each individual specification as the content of a reply will be different depending on the type of QUEST command.



9.2 LIST OF RS-232C COMMANDS

RS-232C commands can be used in Service Factory mode. Before using RS-232C commands, it is necessary to change the factory presetting.

See "6.5.1 OUTLINE OF THE RS-232C".

[Note ; If you want to see version information (ex. QS1, QS6, Factory, Menu), Please see 10 seconds after starting.]

■ RS-232C command list

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
A							
ABL	***	Adjusting the upper limit of the power	●		Mod	●	
AMT	S00	Cancelling the Audio mute		●			
	S01	Cancelling the Audio mute		●			
APW	S00	WB correction interlocked with APL: OFF	●			●	
	S01	WB correction interlocked with APL: ON	●			●	
B			MDU	MTB			
BCP		Copying the backup data in the EEPROM	●			●	
BHI	***	User white balance : BLUE highlight	●				
BLW	***	User white balance : BLUE lowlight	●				
BRT	***	User brightness	●				
BSM	S00	After image/Burning safe mode: OFF	●				
	S01	After image/Burning safe mode: ON	●				
BSL		Adjusting Side Mask Level BLUE		●			
BSS		Moving to BSD service mode		●			
C			MDU	MTB			
CBU		Clearing backup data of EEPROM	●			●	
CHM		Clearing data of the hour meter	●			●	
CHN	FWD	Changing tuner preset channel (1 step forward)		●			
	REV	Changing tuner preset channel (1 step reverse)		●			
CHR		Clearing data of the hour meter of MTB side		●		●	
CNT	***	User contrast	●				
CMT		Clearing data of the maximum temperature	●			●	
CPC		Clearing power-on count data	●			●	
CPD		Clearing power-down history	●			●	
CPM		Clearing data of the pulse meter	●			●	
CSD		Clearing shutdown history	●			●	
CTM		Clearing working log	●			●	
D			MDU	MTB			
DRV	S00	Main power off	●				
	S01	Main power on	●				
DW*		To subtract *** to the adjustment value (***) = 000 to 999, designated by a function command)		●			
E			MDU	MTB			
ESV	S00	Setting Power Consumption mode to normal sequence & normal curve	●				
	S01	Setting Power Consumption mode to silent sequence & normal curve	●				
	S02	Setting Power Consumption mode to silent sequence & power-saving curve	●				
	S10	Setting Power Consumption mode to normal sequence & normal curve	●				
	S11	Setting Power Consumption mode to silent sequence & normal curve	●				
	S12	Setting Power Consumption mode to silent sequence & power-saving curve	●				
F			MDU	MTB			
FAJ		Determining the flag of the DIGITAL Assy adjustment in "adjustment is completed"	●			●	
FAN		Factory mode off	●	●		●	
FAY		Factory mode on	●	●			
FST		Set each memory setting of MTB side to the shipment state.		●			
G			MDU	MTB			
GHI	***	User white balance : GREEN highlight	●				
GLW	***	User white balance : GREEN lowlight	●				
GSL		Green side mask level adjustment		●		●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
I							
INA	***	Terrestrial analog signal switched by tuner (ANTENNA A)		●		●	
	***##	Switching the terrestrial digital signal (ANTENNA A) and terrestrial analog signal		●			
	***	Switching the terrestrial analog signal (ANTENNA A)		●			
INB		Switching the terrestrial analog signal (ANTENNA B)		●			
INC	***	Switching the terrestrial digital signal (EUC is Step-upD and RegularD only, and IBD is AU only)		●			
IND		Satellite digital signal switched by tuner (BS)		●			
INE		Satellite digital signal switched by tuner (CS1)		●			
INF		Satellite digital signal switched by tuner (CS2)		●			
ING		Switching iLink input function		●			
INH		Switching SD card/PCMCIA card		●			
INP	S01	Input switch: INPUT 1		●			
	S02	Input switch: INPUT 2		●			
	S03	Input switch: INPUT 3		●			
	S04	Input switch: INPUT 4		●			
	S05	Input switch: INPUT 5 (JP/US/EU(Step-up) /IBD)		●			
	S06	Input switch: INPUT 6 (JP/US/EU(Step-up) /IBD)		●			
	S07	Input switch: INPUT 7 (JP/US)		●			
K			MDU	MTB			
KDD		Moving to function standby		●			
M			MDU	MTB			
MKC	S00	MASK off	●		Mod	●	
	S01	H ramp (slant 1) M	●		Mod	●	
	S02	H ramp (slant 4) M	●		Mod	●	
	S03	Slanting ramp M	●		Mod	●	
	S04	30 for aging	●		Mod	●	
	S05	05 for aging	●		Mod	●	
	S06	Erasing afterimage 1	●		Mod	●	
	S07	Erasing afterimage 2 (RGB: zigzag, V: reverse)	●		Mod	●	
	S08	White (change in luminance level)	●		Mod	●	
	S09	PEAK SEEK RASTER	●		Mod	●	
	S10	For engineering use	●		Mod	●	
MKS	S00	MASK off	●		Mod		
	S01	H ramp (slant 1)	●		Mod	●	
	S02	H ramp (slant 4)	●		Mod	●	
	S03	V ramp (slant 1)	●		Mod	●	
	S04	Slanting ramp	●		Mod	●	
	S05	Window (Hi= 870, Lo= 102)	●		Mod	●	
	S06	Window (Hi= 1023, Lo= 102)	●		Mod	●	
	S07	Window (Hi= 1023)	●		Mod	●	
	S08	Window (Hi= 1023) 4 %	●		Mod	●	
	S09	Window (Hi= 1023) 1.25 %	●		Mod	●	
	S10	Window (1/7 LINE)	●		Mod	●	
	S11	STRIPE (MGT/GRN)	●		Mod	●	
	S12	STRIPE (GRN/MGT)	●		Mod	●	
	S13	B & W, checker (1 line)	●		Mod	●	
	S14	B & W, checker (2 lines)	●		Mod	●	

A

B

C

D

E

F

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
M							
MKS	S15	B & W, checker (4 lines)	●		Mod	●	
	S16	B & W, checker (8 lines)	●		Mod	●	
	S17	COLOR BAR	●		Mod	●	
	S18	Slanting lines	●		Mod	●	
	S19	Red & black, checker (1 line)	●		Mod	●	
	S20	Red & black, checker (2 lines)	●		Mod	●	
	S21	Red & black, checker (4 ines)	●		Mod	●	
	S22	Red & black, checker (8 lines)	●		Mod	●	
	S23	RGB zigzag, V reverse	●		Mod	●	
	S24	SUS 2000 pulses (black raster)	●		Mod	●	
	S25	Window (Hi= 870, Lo= 102) Pattern 3	●		Mod	●	
	S26	Window (Hi= 1023, Lo= 102) Pattern 3	●		Mod	●	
	S27	Window (Hi= 1023) Pattern 3	●		Mod	●	
	S28	Window (Hi= 1023) 4 % Pattern 3	●		Mod	●	
	S29	Window (Hi= 1023) 1.25 % Pattern 3	●		Mod	●	
	S30	Window (1/7 LINE) Pattern 3	●		Mod	●	
	S31	Noise ON - White	●		Mod	●	
	S32	Noise ON - Red	●		Mod	●	
	S33	Noise ON - Green	●		Mod	●	
	S34	Noise ON - Blue	●		Mod	●	
	S35	Noise ON - Black	●		Mod	●	
	S36	For engineering use	●		Mod	●	
	S37	For engineering use	●		Mod	●	
	S38	For engineering use	●		Mod	●	
	S39	For engineering use	●		Mod	●	
	S51	Raster - White	●		Mod	●	
	S52	Raster - Red	●		Mod	●	
	S53	Raster - Green	●		Mod	●	
	S54	Raster - Blue	●		Mod	●	
	S55	Raster - Black	●		Mod	●	
	S56	Raster - Cyan	●		Mod	●	
	S57	Raster - Magenta	●		Mod	●	
	S58	Raster - Yellow	●		Mod	●	
	S59	RASTER09: Red 760	●		Mod	●	
	S60	RASTER10: Cyan 419	●		Mod	●	
	S61	RASTER11: Green 856	●		Mod	●	
	S62	RASTER12: Gray 313	●		Mod	●	
	S63	RASTER13: Gray 908	●		Mod	●	
	S64	RASTER14: Yellow egg color	●		Mod	●	
	S65	RASTER15: Beige	●		Mod	●	
	S66	RASTER16: Sky color	●		Mod	●	
	S67	RASTER17: Pale purple	●		Mod	●	
	S68	RASTER18: Magenta 54	●		Mod	●	
	S69	RASTER19: Red 1023+	●		Mod	●	
	S70	RASTER20: Green 1023+	●		Mod	●	
	S71	RASTER21: Blue 1023+	●		Mod	●	
	S72	RASTER22: Red 588+	●		Mod	●	
	S73	RASTER23: Green 588+	●		Mod	●	
	S74	RASTER24: Pale rose	●		Mod	●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
M							
MST	S00	Display one screen		●			
	S01	PsideP (Main size : normal)		●			
	S02	PinP (Right_down)		●			
	S03	PinP (Right_up)		●			
	S04	PinP (Left_up)		●			
	S05	PinP (Left_down)		●			
	S06	PsideP (Main size : center)		●			
	S07	PsideP (Main size : large)		●			
	S08	SWAP (Exchanging sub-screen)		●			
O			MDU	MTB			
OSD	S00	Turning OSD setting to off		●			
	S01	Turning OSD setting to on		●			
P			MDU	MTB			
PAV	S**	Switching panel functions interlocked with the AV selection	●				
PBH	***	Panel white balance adjustment - Blue highlight	●		Mod	●	
PBL	***	Panel white balance adjustment - Blue low light	●		Mod	●	
PDM	S00	Passing PD signals to the Power SUPPLY Unit => Power-down	●				
	S01	Not passing PD signals to the Power SUPPLY Unit => No power-down	●				
PFN		Factory mode: off	●			●	
PFS		Setup at shipment	●			●	
PFY		Factory mode: on	●			●	
PGH	***	Panel white balance adjustment - Green highlight	●		Mod	●	
PGL	***	Panel white balance adjustment - Green low light	●		Mod	●	
PGM	S**	Setting of the gamma table	●				
PMT	S00	Canceling panel muting	●				
	S01	Panel muting	●				
POF		Power off	●	●	Main		
PON		Power on	●	●	Main		
PPT	S00	Panel protection: off	●			●	
	S01	Panel protection: on	●			●	
PRH	***	Panel white balance adjustment - Red highlight	●		Mod	●	
PRL	***	Panel white balance adjustment - Red low light	●		Mod	●	
PUC	S00	Pure cinema: off	●	●		●	
	S01	Pure cinema: standard	●	●		●	
	S02	Pure cinema: advanced	●	●		●	
Q			MDU	MTB			
QAJ		Acquiring various adjustment values	●				
QIP		Acquiring various input signal data	●				
QMT		Acquiring temperature of MTB side and Fan speed		●			
QNG		Acquiring shut-down information of MTB side		●			
QPD		Acquiring logs of power-down points	●				
QPM		Acquiring data of the pulse meter	●				
QPW		Acquiring panel white balance adjustment values	●				
QS1		Acquiring unit data, such as the software version common to all models, regardless of destination	●	●			
QS2		Acquiring data on the status of the unit, such as temperature	●				
QS6		Acquiring unit data, such as the software version common to all models, regardless of destination		●			
QSD		Acquiring data on shutdown	●				

A

B

C

D

E

F

Command Name	Function		Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
Q							
QSI		Acquiring data related with signals	●				
R			MDU	MTB			
RBL	S**	Setting of blue level for panel degradation correction	●		Mod	●	
RGL	S**	Setting of green level for panel degradation correction	●		Mod	●	
RHI	***	User white balance - Red highlight	●				
RLW	***	User white balance - Red low light	●				
RRL	S**	Setting of red level for panel degradation correction	●		Mod	●	
RSL	***	Adjustment of the Red side mask level		●		●	
RSW	***	Adjustment of the width of XY reset pulse 1	●		Mod	●	
RYW	***	Adjustment of the width of XY reset pulse 2	●		Mod	●	
S			MDU	MTB			
SDM	S00	Shutdown enabled	●				
	S01	Shutdown prohibited	●				
SFR	S01	Measures against AM radio noise - Pattern 1	●		Mod	●	
	S02	Measures against AM radio noise - Pattern 2	●		Mod	●	
	S03	Measures against AM radio noise - Pattern 3	●		Mod	●	
	S04	Measures against AM radio noise - Pattern 4	●		Mod	●	
	S05	Measures against AM radio noise - Pattern 5	●		Mod	●	
	S06	Measures against AM radio noise - Pattern 6	●		Mod	●	
	S07	Measures against AM radio noise - Pattern 7	●		Mod	●	
	S08	Measures against AM radio noise - Pattern 8	●		Mod	●	
SMM	S**	Setting of the effective area during streaking correction	●			●	
SN0	***	Setting of the serial No. 0 (panel)	●		Mod	●	
SN1	***	Setting of the serial No. 1 (panel)	●		Mod	●	
SN2	***	Setting of the serial No. 2 (panel)	●		Mod	●	
SN3	***	Setting of the serial No. 3 (panel)	●		Mod	●	
SN4	***	Setting of the serial No. 4 (panel)	●		Mod	●	
SZM	S00	Setting the screen size to Dot by Dot or PARTIAL		●			
	S01	Setting the screen size to 4 :3		●			
	S02	Setting the screen size to FULL or FULL1080i		●			
	S03	Setting the screen size to ZOOM		●			
	S04	Setting the screen size to CINEMA		●			
	S05	Setting the screen size to WIDE		●			
	S06	Setting the screen size to FULL 14 : 9		●			
	S07	Setting the screen size to CINEMA 14 : 9		●			
S08	Setting the screen size to FULL1035		●				
T							
—		—					
U			MDU	MTB			
UAJ		Determining the flag for the DIGITAL Assy adjustment in "not adjusted"	●				
UP*		To add *** to the adjustment value (** = 000 to 999, designated by a function command)		●			

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
V							
VFQ	S01	Setting the frequency in Mask mode to VD-48 Hz	●		Mod	●	
	S02	Setting the frequency in Mask mode to VD-50 Hz	●		Mod	●	
	S03	Setting the frequency in Mask mode to VD-60 Hz	●		Mod	●	
	S05	Setting the frequency in Mask mode to VD-72 Hz	●		Mod	●	
	S06	Setting the frequency in Mask mode to VD-75 Hz	●		Mod	●	
	S13	Setting the frequency in Mask mode to PC-60 Hz	●		Mod	●	
	S14	Setting the frequency in Mask mode to PC-70 Hz	●		Mod	●	
	S22	Setting the frequency in Mask mode to VD-50 Hz (nonstandard)	●		Mod	●	
	S23	Setting the frequency in Mask mode to VD-60 Hz (nonstandard)	●		Mod	●	
	S25	Setting the frequency in Mask mode to VD-72 Hz (nonstandard)	●		Mod	●	
	S26	Setting the frequency in Mask mode to VD-75 Hz (nonstandard)	●		Mod	●	
VOF	***	Adjustment of the reference value of Vofs voltage	●			●	
VOL	UP*, DW*, ***	To adjust the volume (to be used in combination with UP*/DW*)		●			
VRP	***	Adjustment of the reference value of Vrst-p voltage	●			●	
VSU	***	Adjustment of the reference value of Vsus voltage	●			●	
W							
WBI	S00	Panel WB standard output mode: off	●			●	
WBI	S01	Panel WB standard output mode: on	●			●	
X							
XSB	***		●		Mod	●	
Y							
YSB	***	Y-SUS-B ADJ	●		Mod	●	
YTB	***	Y-SUSTAIL T2 ADJ	●		Mod	●	
YTG	***	Y-SUSTAIL T1 ADJ	●		Mod	●	
YTW	***	Y-SUSTAIL W ADJ	●		Mod	●	
Z							
ZDT		Initializing the DTB FLASH		●		●	
ZME		Initializing the video EEPROM data		●		●	
ZPR		Initializing the setting data to which no adjustment command is provided	●			●	

1 2 3 4

9.3 OUTLINE OF COMMANDS

9.3.1 QS1

■ Acquisition of panel status ••• [QS1]
Model information and version information are returned.

Format	Effective Condition	Function	Remarks
[QS1]	Every time	Output of status	Reply Data : 105 Byte

Array		Size	Remarks
ECO		3	QS1 (Fixed)
1	Display Information 1	1	F
2	Display Information 2	1	7 : G7
3	Display Information 3	1	A : USA
4	Display Information 4	1	*
5	Display Information 5	1	B
6	MdUCon-Boot	3	01A
7	MdUcon-Prg	8	
8	Seq Prs-Boot	3	01A
9	Seq Prs-Prg	8	
10	SQ-VIDEO	4	
11	SQ-PC	4	
12	Panel Type	1	P/F
13	Reserved (*)	7	*****
14	, (Comma)	1	
15	MTB Information 1 (Generation)	1	7 : G7
16	MTB Information 2 (Regional model)	1	A : USA
17	MTB Information 3 (Grade)	1	H : Elite
18	MTB Information 4 (System Type)	1	B
19	Common Version for IF microcomputer.	4	
20	Common Version for Main microcomputer.	8	
21	Boot Version of Main microcomputer.	4	
22	Common Version for Multi-Processor.	8	
23	Boot Version of Multi-Processor.	4	
24	Reserved (*)	24	
25	Check Sum	2	FF

● MTB/MB-side's Information (15-24)	
IF uCON	Common Version of IF-uCON
Main uCon	Common Version of Main-uCON
Main uCon-Boot	Boot Version of Main-uCON
Multi-Pr s	Common Version of Multi-Processor Program.
Multi Prs-Boot	Boot Version of Multi-Processor Program.

1.Resolution/Inch Size 3 1024*768/42 4 1024*768/43 5 1280*768/50 6 1365*768/50 7 1365*768/60 F 1920*1080/50	2. Panel Generation 6 G6 7 G7 8 G8 9 G9 0 G10	● MTB/MB Generation 6 G6 7 G7 8 G8 9 G9 0 G10	● Regional model J JP A US E EU G GE C CH U AU
3. Grade * Commonness A US (reserved) E EU (reserved) J Japan (reserved)	4. System Type * Commonness Z Evaluation ● Panel Product Form S System model B All-in-one design TV	● MTB/MB Product Form S System model B One Body Model (SX) M Monitor (FHD)	● MTB/MB Grade H Elite / DXA / Step-upD T Step-upA /XG / TXC / Re gular (US) B Not used.(For Future) S Regular D R Regular A
● Panal Type P the past F High-effective	D Standard module E Simple module		

■ Acquisition of panel operation data ••• [QS2]

The command QS2 is for acquiring data on the panel's operational information.

Command Format	Effective Operation Modes	Function	Remarks
[QS2]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+23(DATA)+2(CS)= 28 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QS2
1	Notification of mode shifting to STB	1 Byte	1
2	Flag for adjustment of the main unit	1 Byte	0
3	Flag for adjustment-data backup	1 Byte	0
4	"1st PD" data	1 Byte	0
5	"2nd PD" data	1 Byte	0
6	Still picture detection	1 Byte	0
7	Reserved	2 Byte	**
8	Temperature data (TEMP 1)	3 Byte	128 (*1)
9	SD main data	1 Byte	0
10	SD sub data	1 Byte	0
11	Operation status induced by SD	1 Byte	0
12	Data from the hour meter	8 Byte	00000259 (*2)
13	MASK indication	1 Byte	0
CS		2 Byte	4A

Note : (*1) : The unit scale is centigrade. The data is A/D value from the thermal sensor.

(*2) : "00000259" of "Data from the hour meter" means 2 hours 59 minutes.

1: Notification of mode shifting to Standby	
0	Entering Standby mode failed
1	Entering Standby mode succeeded

2: Adjustment of the main unit	
0	Adjustment completed
1	Adjustment not completed

3: Adjustment-data backup	
0	With backup data
1	No data (default)

4, 5: PD data	
0	No PD data
1	Not used
2	POWER
3	SCAN
4	SCN-5V
5	Y-DRV
6	Y-DCDC
7	Y-SUS
8	ADRS
9	X-DRV
A	X-DCDC
B	X-SUS
C	Not used
D	Not used
E	Not used
F	UNKNOWN

6: Still picture detection	
0	Normal screen
1	Still picture

9: SD main data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

10-1: SD-Sub (SQ-IC)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
6	Version mismatching

10-2: SD-Sub (IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

10-3: SD-Sub (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved

11: Operation status induced by SD	
0	Normal
1	Relay-off completed
2	During warning indication

13: MASK indication	
0	MASK-OFF
1	MASK-ON

9.3.3 QIP

■ Acquisition of other data on the panel ••• [QIP]

The command QIP is for acquiring data on operational information of the panel.

A

Command Format	Effective Operation Modes	Function	Remarks
[QIP]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+58(DATA)+2(CS)= 63 Byte

B

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QIP
1	SERIAL	15 Byte	-----
2	HOURLY METER	8 Byte	00000000
3	TOTAL HOURLY METER	8 Byte	00000000
4	PON COUNTER	8 Byte	00000000
5	TEMP1 acquisition (Temperature value)	5 Byte	+23.5(*)
6	TEMP0 acquisition (Temperature value)	5 Byte	+28.7(*)
7	MAX-TEMP1 acquisition (Temperature value)	5 Byte	+78.3(*)
8	Reserved	4 Byte	****
CS		2 Byte	94

(*) : Centigrade scale

C

9.3.4 QAJ

■ Acquisition of panel adjustment data (common data) ••• [QAJ]

The command QAJ is for acquiring the panel's factory-preset data.

Command Format	Effective Operation Modes	Function	Remarks
[QAJ]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+41(DATA)+2(CS)= 46 Byte

D

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QAJ
1	V-SUS adjustment value	3 Byte	128
2	V-OFT adjustment value	3 Byte	128
3	V-RST-P adjustment value	3 Byte	128
4	Reserved	3 Byte	***
5	XSB adjustment value	3 Byte	128
6	YSB adjustment value	3 Byte	128
7	YTG adjustment value	3 Byte	128
8	YTW adjustment value	3 Byte	128
9	RSW adjustment value	3 Byte	128
10	YTB adjustment value	3 Byte	128
11	RYW adjustment value	3 Byte	128
12	R-REVICE setting value	1 Byte	0
13	G-REVICE setting value	1 Byte	0
14	B-REVICE setting value	1 Byte	0
CS		2 Byte	B7

F

• For each REVICE setting value, the level set for RRL, RGL, or RBL is transmitted as one character.

9.3.5 QPW

■ Acquisition of ABL/WB adjustment data ••• [QPW]

The command QPW is for acquiring the factory-preset data about the video of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPW]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+35(DATA)+2(CS)= 40 Byte

Data Arrangement	Data Length	Output Example	1: Drive sequence	12, 15: Setting for Items 12 and 15
ECO	3 Byte	QPW	48V Video 48 Hz	0 OFF
1 Drive sequence	3 Byte	60V	50V Video 50 Hz	1 ON
2 Standard/nonstandard	1 Byte	S	60V Video 60 Hz	
3 Type of ABL/WB tables	2 Byte	T2	72V Video 72 Hz	13: Peripheral luminance correction
4 ABL adjustment value	3 Byte	128	75V Video 75 Hz	0 OFF
5 R-HIGH adjustment value	3 Byte	256	60P PC 60 Hz	2 ON (interlocked with APL)
6 G-HIGH adjustment value	3 Byte	256	70P PC 70 Hz	
7 B-HIGH adjustment value	3 Byte	256		
8 R-LOW adjustment value	3 Byte	512		16: Transition of brightness by protective operations
9 G-LOW adjustment value	3 Byte	512	2: Standard/nonstandard	0 Upper limit state for brightness
10 B-LOW adjustment value	3 Byte	512	S Standard	1 Brightness being reduced
11 Gamma setting	1 Byte	A	N Nonstandard	2 Lower limit state for brightness
12 Streaking correction	1 Byte	1		3 Brightness being increased
13 Peripheral luminance correction	1 Byte	0	3: Type of ABL/WB tables	
14 Reserved	1 Byte	*	Tn n: 1 to 4	
15 WB interlocked with APL	1 Byte	0		
16 Transition of protective operations	1 Byte	0	11: Gamma setting	
17 Reserved	2 Byte	**	n 0 to F	
CS	2 Byte	37		

9.3.6 QPM

■ Acquisition of pulse meter value ••• [QPM]

The command QPM is for acquiring the accumulated number of pulses of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPM]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+40(DATA)+2(CS)= 45 Byte

Data Arrangement	Data Length	Output Example
ECO	3Byte	QPM
1 Pulse meter B 1	8Byte	00000000
2 Pulse meter B 2	8Byte	00000000
3 Pulse meter B 3	8Byte	00000000
4 Pulse meter B 4	8Byte	00000000
5 Pulse meter B 5	8Byte	00000000
CS	2Byte	E7

9.3.7 QPD

■ Acquisition of PD logs ••• [QPD]

The command QPD is for acquiring data from the 8 latest power-down (PD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QPD]	All operations	To acquire data on the power-down logs	Return data: 3 (ECO)+80(DATA)+2(CS)= 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QPD
1	Latest "1st PD" data	1 Byte	A
2	Latest "2nd PD" data	1 Byte	2
3	Data from the hour meter for the latest PD	8 Byte	00010020
4	Second latest "1st PD" data	1 Byte	E
5	Second latest "2nd PD" data	1 Byte	9
6	Data from the hour meter for the second latest PD	8 Byte	00008523
7	Third latest "1st PD" data	1 Byte	4
8	Third latest "2nd PD" data	1 Byte	3
9	Data from the hour meter for the third latest PD	8 Byte	00004335
10	Fourth latest "1st PD" data	1 Byte	2
11	Fourth latest "2nd PD" data	1 Byte	0
12	Data from the hour meter for the fourth latest PD	8 Byte	00000945
13	Fifth latest "1st PD" data	1 Byte	4
14	Fifth latest "2nd PD" data	1 Byte	0
15	Data from the hour meter for the fifth latest PD	8 Byte	00000715
16	Sixth latest "1st PD" data	1 Byte	A
17	Sixth latest "2nd PD" data	1 Byte	2
18	Data from the hour meter for the sixth latest PD	8 Byte	00000552
19	Seventh latest "1st PD" data	1 Byte	A
20	Seventh latest "2nd PD" data	1 Byte	0
21	Data from the hour meter for the seventh latest PD	8 Byte	00000213
22	Eighth latest "1st PD" data	1 Byte	D
23	Eighth latest "2nd PD" data	1 Byte	0
24	Data from the hour meter for the eighth latest PD	8 Byte	000001A7
CS		2 Byte	27

1, 2, 4, 5: PD data	
0	No PD
1	Not used
2	P-POWER
3	SCAN
4	SCN-5V
5	Y-DRIVE
6	Y-DCDC
7	Y-SUS
8	Address
9	X-DRIVE
A	X-DCDC
B	X-SUS
C	Not used
D	Not used
E	Not used
F	UNKNOWN

9.3.8 QSD

■ Acquisition of SD logs ••• [QSD]

The command QSD is for acquiring the data from the 8 latest shutdown (SD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QSD]	All operations	To acquire data on the shutdown logs	Return data: 3 (ECO)+80(DATA)+2(CS)= 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3Byte	QSD
1	Latest SD data	1byte	1
2	Latest SD subcategory data	1byte	0
3	Data from the hour meter for the latest SD	8byte	00752013
4	Second latest SD data	1byte	5
5	Second latest SD subcategory data	1byte	0
6	Data from the hour meter for the second latest SD	8byte	00495204
7	Third latest SD data	1byte	2
8	Third latest SD subcategory data	1byte	3
9	Data from the hour meter for the third latest SD	8byte	00100355
10	Fourth latest SD data	1byte	2
11	Fourth latest SD subcategory data	1byte	5
12	Data from the hour meter for the fourth latest SD	8byte	00075620
13	Fifth latest SD data	1byte	1
14	Fifth latest SD subcategory data	1byte	0
15	Data from the hour meter for the fifth latest SD	8byte	00000852
16	Sixth latest SD data	1byte	2
17	Sixth latest SD subcategory data	1byte	5
18	Data from the hour meter for the sixth latest SD	8byte	000000451
19	Seventh latest SD data	1byte	0
20	Seventh latest SD subcategory data	1byte	0
21	Data from the hour meter for the seventh latest SD	8byte	00000000
22	Eighth latest SD data	1byte	0
23	Eighth latest SD subcategory data	1byte	0
24	Data from the hour meter for the eighth latest SD	8byte	00000000
CS		2Byte	7D

● SD data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

● SD subcategory (SQ-IC)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
6	Version mismatching

● SD subcategory (MDU-IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

● SD subcategory (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved

9.3.9 QS6

A **QS6** : Returning information of the Flash Device.

Format	Effective Condition	Function	Remarks
[QS6]	Every time	Output of status	

Order	Data	Size	Context
0	Received Command Name	3 byte	'QS6' only
01	Hardware Version of DTV	8 byte	
02	Hardware Serial of DTV	8 byte	
03	Runtime Version of DTV	8 byte	
04	CFE Version	8 byte	
05	KERNEL Version	8 byte	
06	ROOTFS Version	8 byte	
07	FLAGS Information 1	1 byte	
08	FLAGS Information 2	1 byte	
09	FLAGS Information 3	1 byte	
10	FLAGS Information 4	1 byte	
11	FLAGS Information 5	1 byte	
12	FLAGS Information 6	1 byte	
13	Version of CCD-UCOM	4 byte	
14	HMG/HG MODELE Version	10byte	
15	User Password	4 byte	
16	Check Sum	2 byte	

C

D

E

F

9.3.10 QSI

■ Acquisition of input signal data ••• [QSI]

The command QSI is for acquiring all data on input video signals.

Command Format	Effective Operation Modes	Function	Remarks
[QSI]	All operations	To acquire all data on input video signals	Return data: 3 (ECO)+66(DATA)+2(CS)= 71 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSI
1	Type of drive sequence	3 Byte	60V
2	Standard/nonstandard	1 Byte	S
3	Type of ABL/WB tables	2 Byte	T1
4	Total value of PCN	4 Byte	0256
5	Total value of PRH	4 Byte	0256
6	Total value of PGH	4 Byte	0256
7	Total value of PBH	4 Byte	0256
8	Total value of PBR	4 Byte	0512
9	Total value of PRL	4 Byte	0512
10	Total value of PGL	4 Byte	0512
11	Total value of PBL	4 Byte	0512
12	Total value of ABL	3 Byte	128
13	Detection of V frequency	4 Byte	6002
14	Detection of existence of H	1 Byte	Y
15	Reserved	3 Byte	***
16	Obtained APL data	4 Byte	1023
17	Number of SUS pulses	4 Byte	0457
18	Result of detection of still picture	1 Byte	1
19	Result of detection of cracking in the panel	1 Byte	1
20	Result of detection for scanning protection	1 Byte	1
21	Result of detection for external protection	1 Byte	1
22	Transition of protection operation	1 Byte	0
23	Reserved	4 Byte	****
CS		2 Byte	27

14: Detection of existence of H	
N	No H
Y	H detected

18 to 20: Each protection operation status	
0	Setting OFF
1	Setting ON (waiting)
2	Setting ON (during operation)

22: Transition of brightness by protection operation	
0	Upper limit state for brightness
1	Brightness being reduced
2	Lower limit state for brightness
3	Brightness being increased

9.3.11 QMT

QMT : Returning information of temperature and FAN speed.

Format	Effective Condition	Function	Remarks
[QMT]	Every time	Output of status	MTB-side's temperature/FAN rotating status

Order	Data	Size	Context
0	Received Command Name	3 byte	'QMT' only
1	MTB Temperature	3 byte	
2	MTB FAN Speed	1 byte	0: STOP 1:LOW 2:HIGH
3	Cjheck Sum	2 byte	

9.3.12 QNG

QNG : Returning data (logs keep on Main microcomputer) on shutdown of Multi-Tuner Base.

Format	Effective Condition	Function	Remarks
[QNG]	Every time	Output of status	

Order	Data	Size	Context
0	Received Command Name on MTB	3 byte	'QNG' only
01	Latest NR data	1 byte	
02	Data of subcategory for the latest NG	1 byte	
03	Data of MTB hour meter for the latest NG	7 byte	
04	Data of temperature for the latest NG	3 byte	
05	2'st latest NG data	1 byte	
06	Data of subcategory for the 2'st latest NG	1 byte	
07	Data of MTB hourmeter for the 2'st latest NG	7 byte	
08	Data of temperature for the 2'st latest NG	3 byte	
09	3rd latest NG data	1 byte	
10	Data of subcategory for the 3rd latest NG	1 byte	
11	Data of MTB hourmeter for the 3rd latest NG	7 byte	
12	Data of temperature for the 3rd latest NG	3 byte	
:	:	:	
29	8'st latest NG data	1 byte	
30	Data of subcategory for the 7'st latest NG	1 byte	
31	Data of MTB hour meter for the 7'st latest NG	7 byte	
32	Data of temperature for the 7'st latest NG	3 byte	

■Details of Data and subcategory

<SD Information No.>		
Data	Cause of shutdown	Remarks
0	Normal	
1	failure of communication to Module microcomputer	MODULE (immediately Shutdown)
2	3-wire serial communication of Main microcomputer	Go to subcategory ⇒ No.1
3	IIC communication failure of Main microcomputer & Unknown error	Go to subcategory ⇒ No.2
4	communication failure of Main microcomputer	MAIN (immediately Power Supply OFF)
5	FAN stopped	FAN (immediately Power Supply OFF)
6	Abnormally high temperature at MTB.	TEMP2 (After 30second warning, ture Power Supply off)
7	failure of Digital Tuner	Go to subcategory ⇒ No.3
8	failure of Power Supply	Go to subcategory ⇒ No.4
B	Speaker short-circuit	After 3 second warning, turn the Power Supply OFF.

<No.1 Subcategory Information on "failure in 3-wire serial communication of Main microcomputer">		
Data	Cause of shutdown	Remarks
0	Non subcategory	
1	IF microcomputer communication failure	IF (immediately Power Supply OFF)
2	MANTA communication failure (MULTI1)	MULTI1 (immediately Power Supply OFF)
4	MANTA communication failure (I/P)	I/P
5	MANTA communication failure (D-SEL)	D-SEL

<No.2 Subcategory Information on "failure in IIC communication of Main microcomputer">		
Data	Cause of shutdown	Remarks
0	Non subcategory	
1	Analog Tuner 1 (Front End 1)	FE1 (immediately Power Supply OFF)
2	Analog Tuner 2 (Front End 2)	FE2 (immediately Power Supply OFF)
3	MPX	
4	AV Switch	AV-SW (immediately Power Supply OFF)
5	RGB Switch	RGB-SW (immediately Power Supply OFF)
6	CCD	CCD (immediately Power Supply OFF)
8	Main VDEC	M-VDEC (immediately Power Supply OFF)
A	AD/PLL	ADC (immediately Power Supply OFF)
B	HDMI	HDMI (immediately Power Supply OFF)
G	64k EEPROM	MA-FEP (immediately Power Supply OFF)
H	AUDIO IC	

<No.3 Subcategory Information on "Digital Tuner">		
Data	Cause of shutdown	Remarks
0	Non subcategory	
1	Failure to DTB Starting	PS/RST (immediately Power Supply OFF)
3	DTV Device Error	Device (immediately Power Supply OFF)
5	TV-Guide Error	TV-G (immediately Power Supply OFF)
7	Home Gallery Application communication error.	HOME-G (communication error (Retry 16 times) →Do not return after 2 times of soft reset)

<No.4 Subcategory Information on "POWER">		
Data	Cause of shutdown	Remarks
1	DCDC Converter Power Supply reduced	M-DCDC (immediately Power Supply OFF)
2	Relay Power Supply reduced	RELAY (immediately Power Supply OFF)

9.3.13 DRV

■ DRV

Drive ON/OFF : ON/OFF control for only the large-power system

Format	Effective Condition	Function	Remarks
[DRV+S00]	Every time	DRIVE OFF	At standby mode, when 10 seconds passed after issuing [DRV+S00], command becomes invalid.
[DRV+S01]		DRIVE ON	

■

Commands for prohibition/permission of DTV/HomeNet communication

A

Control device: DTV & HomeNet
Memory: ON/OFF of DTV communication prohibition mode
Applicable models: Only for models for North America

■

Functions

■

This is a command for forcibly prohibiting communication with DTV (for Elite series panels, communication using HomeNet is included).

Normally, after the panel and the connected DTV are turned on, any operation is prohibited on the panel until startup of the DTV is completed. However, on the production line, to avoid a drain on productivity, such waiting time must be shortened. Thus, for the processes where the DTV is not necessary, such as panel adjustment, the existence of the DTV can be ignored, to shorten waiting time.

B

■

Commands

■

DTN	S00	To exit DTV/HomeNet Communication
	S01	To enter DTV/HomeNet Communication

■

Operations

C

[DTNS01]
<Effective operation mode>
Factory Operation mode
Note: This command must be effective even if the Assy is used alone or installed in the unit.

-
- Having entered DTV/HomeNet Communication Prohibition mode must be stored in memory.
 - The blue LED flashes rapidly to indicate that DTV/HomeNet Communication Prohibition mode is active.



- D
- The next resetting of the main microcomputer is canceled, the main microcomputer judges that DTNS01 is established, then communication with DTV/HomeNet will be prohibited. In such a case, any user operations (FAY command, etc.) entered immediately after the unit is turned on must be effective. Also, any operations other than DTV/HomeNet operations must be effective in the same way as during DTNS00.

■

[DTNS00]
<Effective operation mode>
Factory Operation mode
Note: This command must be effective even if the Assy is used alone or installed in the unit.

- E
- Having entered DTV/HomeNet Communication Permission mode must be stored in memory.
 - It is not necessary to immediately restore communication with DTV/HomeNet. DTV/HomeNet communication must be restored until resetting of the main microcomputer is canceled next time.

■

Supplement

- F
- While ZACS01 is established, the LED for ZAC flashes. The priority of LED indications is as follows:
PD > Trap-SW > DTV_STB > SD > ZAC >DTN > no backup copy > Standalone operation of the Assy > Normal ON/OFF
 - Even if DTNS00 is established, if ZACS01 is established, DTV/HomeNet communication must be prohibited.

■ Setting for Factory mode permission/prohibition ••• [FAY/FAN]

The commands FAY/FAN are for prohibiting/permitting panel-adjustment commands.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAY]	Normal operation mode while the power is on	Adjust command is valid.	Mask indications will be forcibly turned off.
[FAN]	During FAY	Adjust command is invalid.	

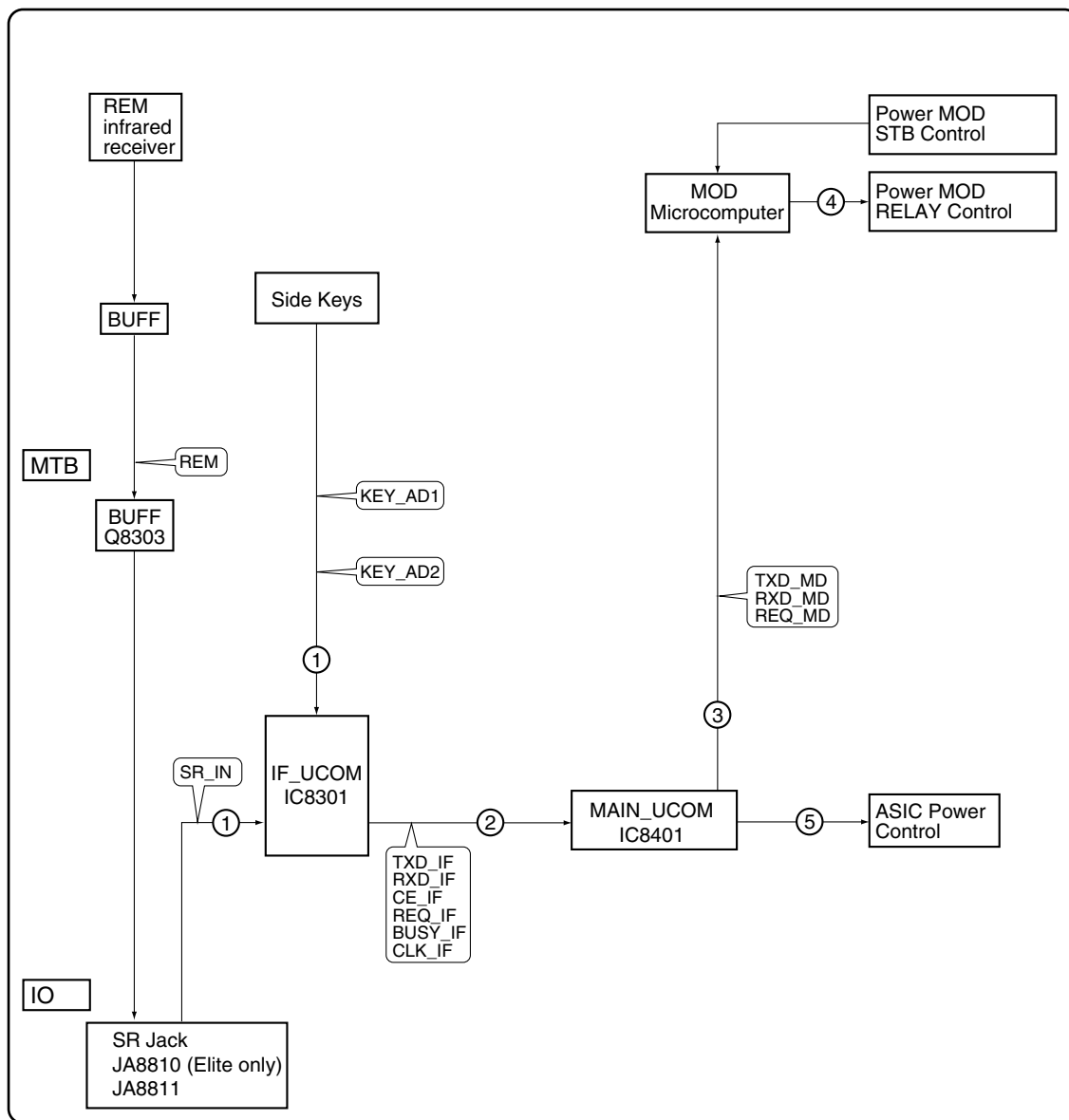
■ Backup function for adjustment values for the main unit ••• [FAJ/UAJ/CBU/BCP]

When the DIGITAL Assy is to be replaced, adjustment values can be copied from the backup EEPROM to the EEPROM of the Assy for service.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAJ]	During FAY	To make the flag setting that indicating that adjustment of the panel unit has been completed	Writing 00 to the 4 k byte ROM and copying to the 2 k byte ROM
[UAJ]		To make the flag setting that indicating that adjustment of the main unit has not been completed	Writing F0 to the 4 k byte ROM
[CBU]		To make the flag setting that indicating that backup data have not been copied	Writing F0 to the 2 k byte ROM
[BCP]		To copy Digital backup data to EEPROM	Copying backup data

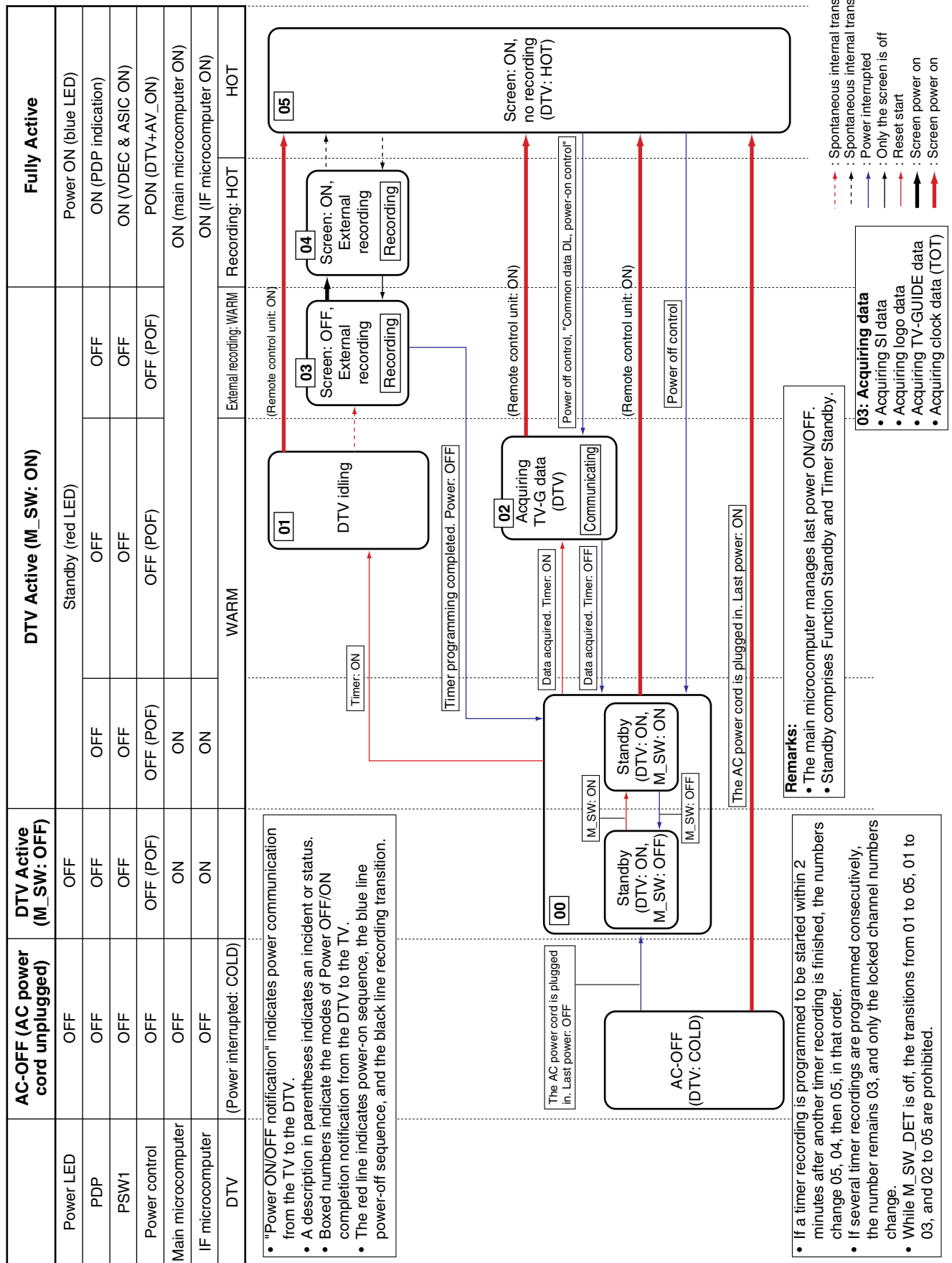
10. GENERAL INFORMATION

10.1 POWER ON SEQUENCE

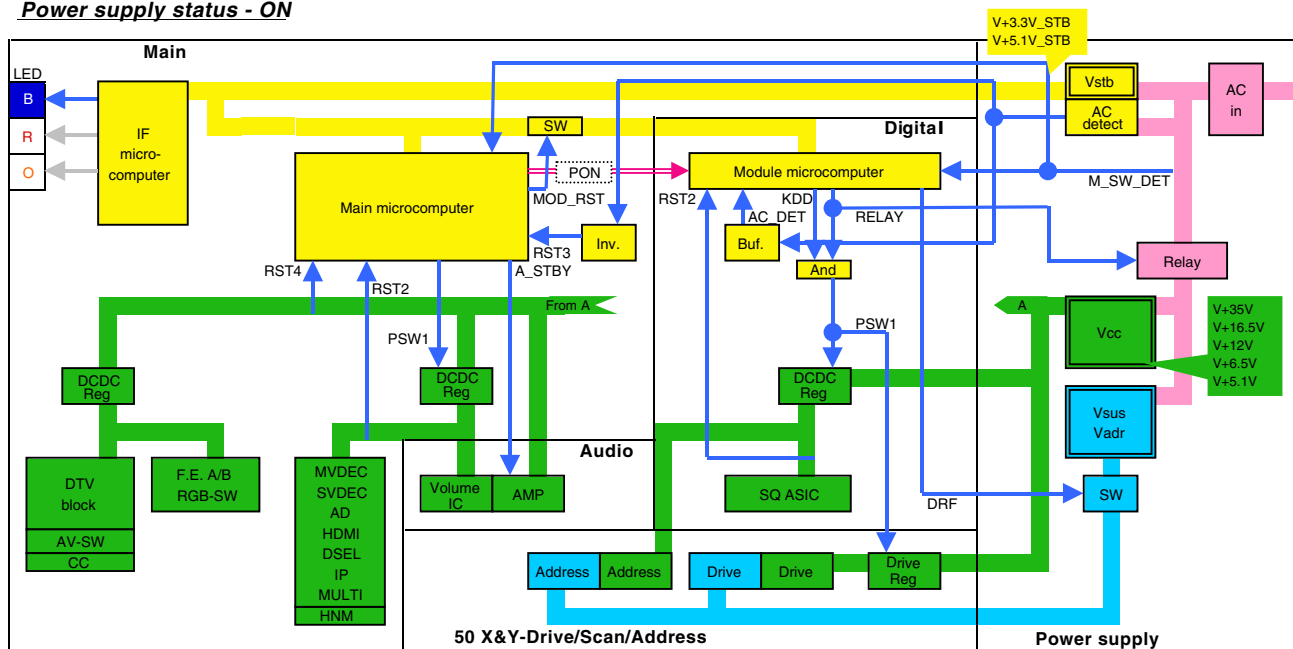


- ① : The remote control (or KEY) signal is input to the IF microcomputer.
- ② : The IF microcomputer sends the operation data to the main microcomputer.
- ③ : The main microcomputer issues a startup command (PON) to the MOD microcomputer.
- ④ : The MOD microcomputer controls the relay of the power MOD of the PDP to startup the power of the PDP.
- ⑤ : The main microcomputer controls the ASIC power within the MTB to startup the power of the MTB.

10.2 POWER SUPPLY TRANSITION STATUS

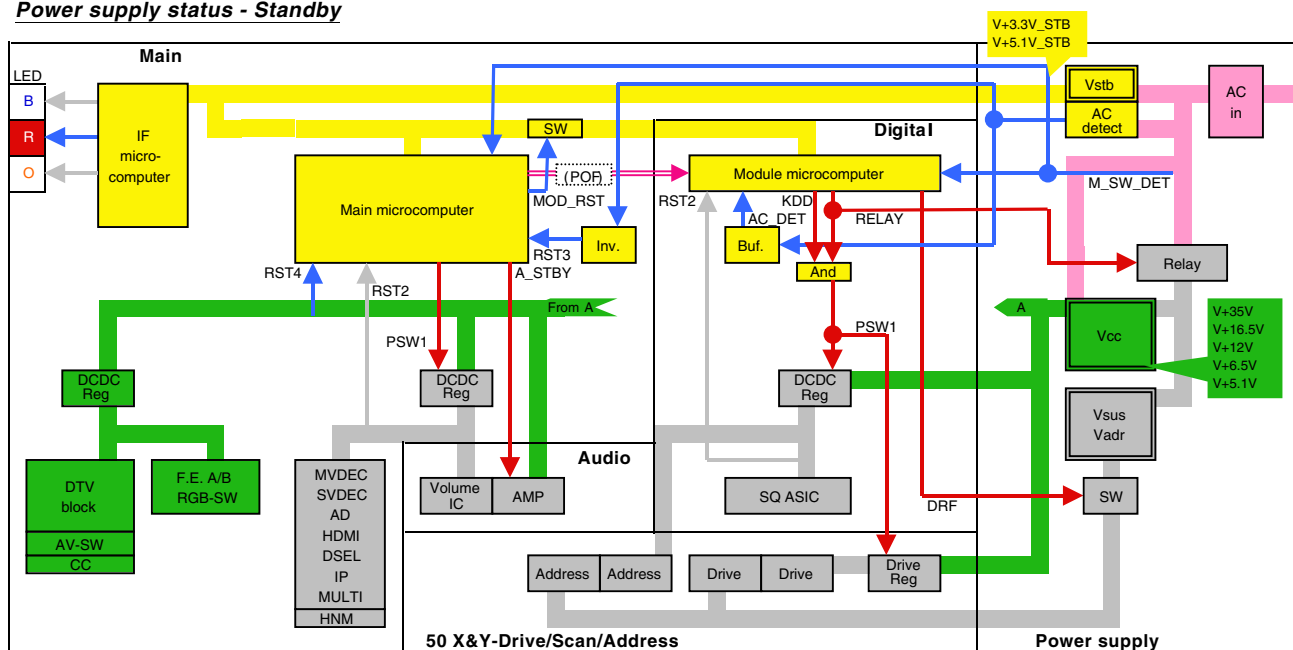


A

Power supply status - ON

B

C

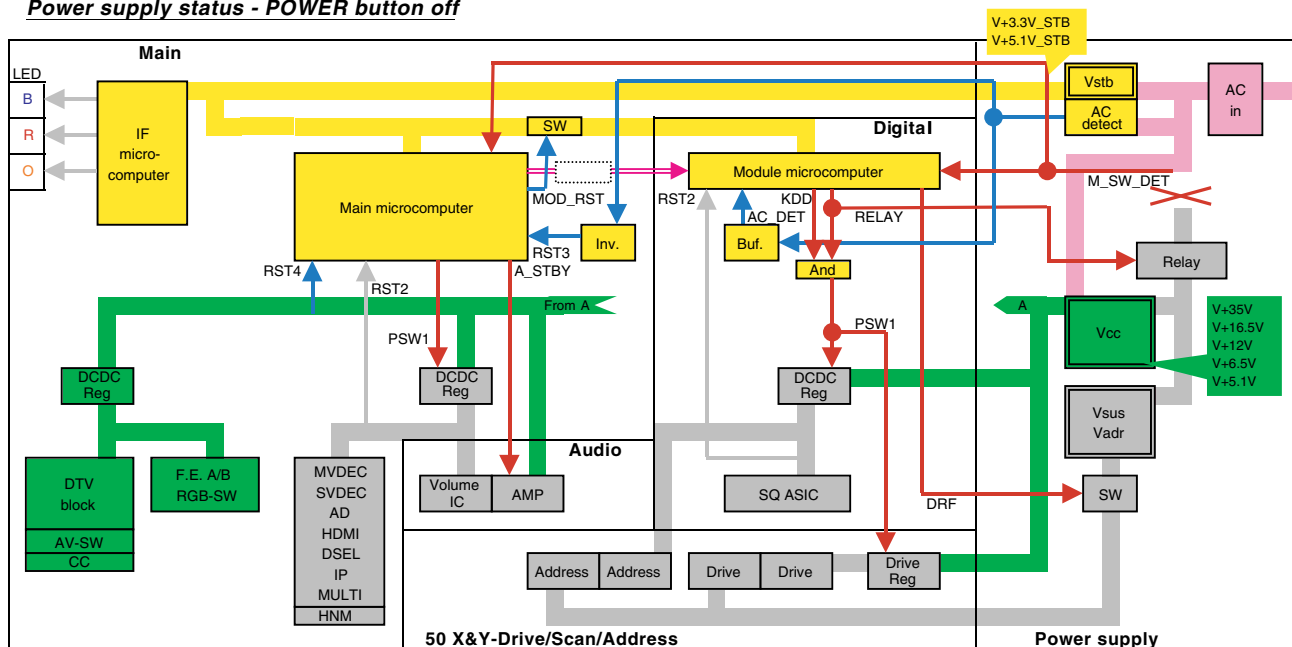
Power supply status - Standby

D

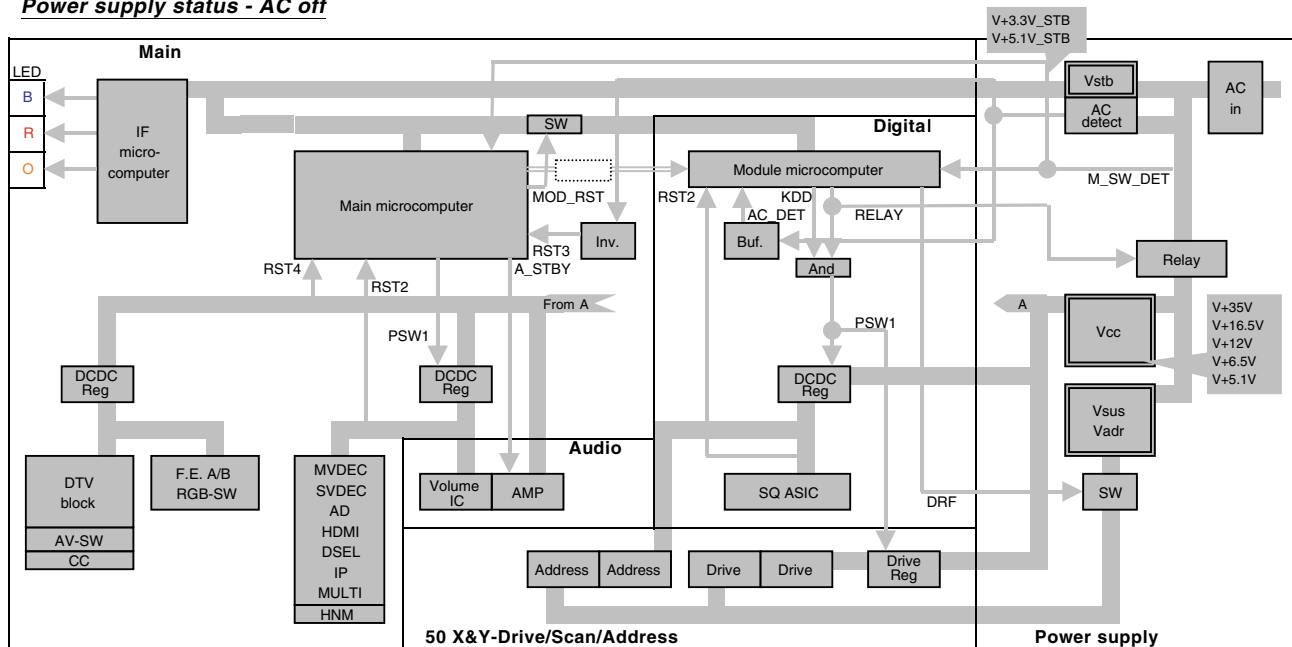
E

F

Power supply status - POWER button off



Power supply status - AC off



10.3 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM

Function: It is an operational mode where the digital signal processing performs circuit operation but the power is not supplied to the panel driving system (large signal system) in order to avoid a power down.

Application:

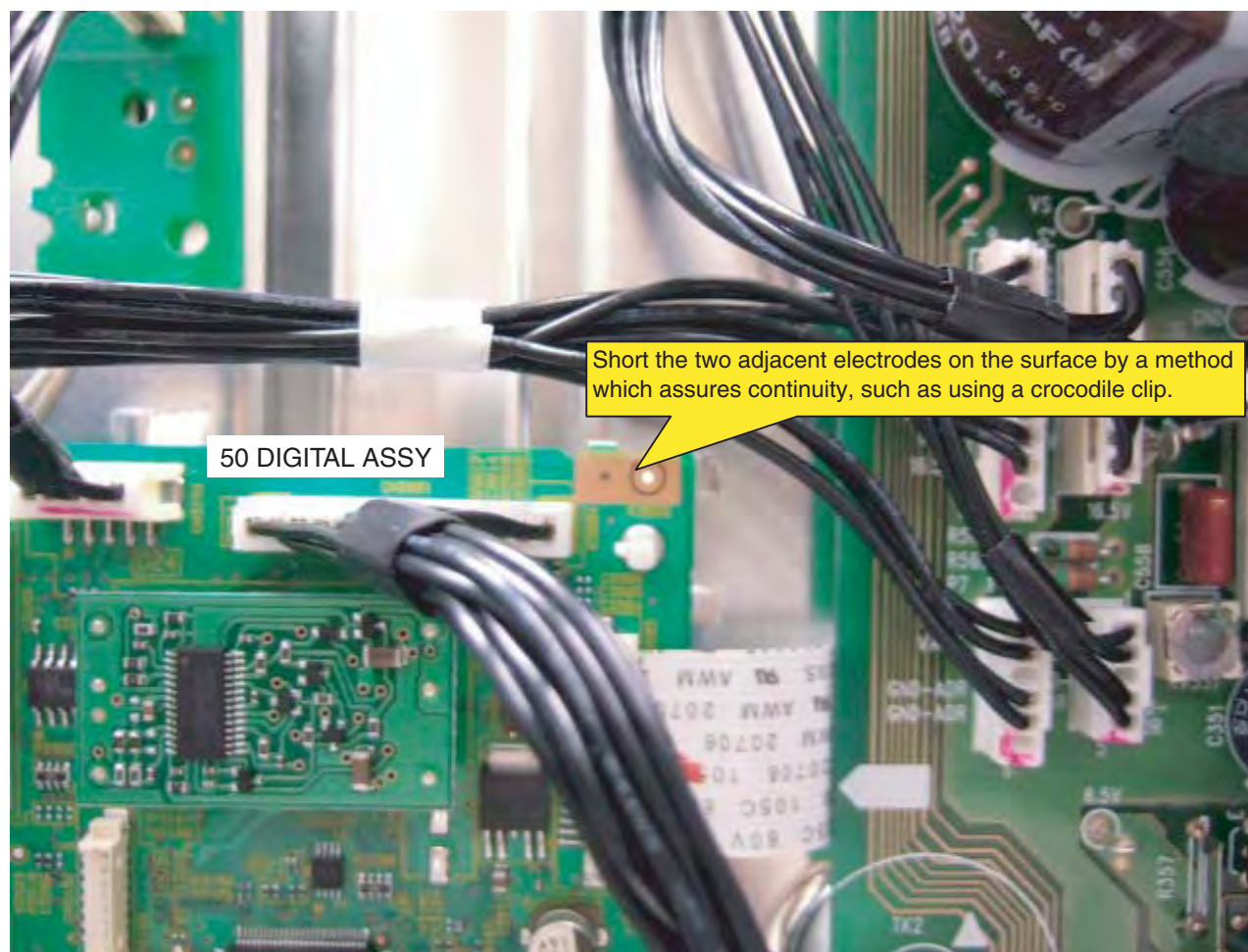
1. When it is necessary to check whether the signal output is correctly reaching the drive system in a repairing activity etc.
2. In the case of a PD, to determine whether the problem is with the large signal system power supply or with the small signal system power supply.

Method:

1. Make shorting between the specified location (refer to the illustration below) of the PCB surface of the 50 DIGITAL ASSY and the nearby pattern.
2. Execute [DRV S00] by RS232C command. ([DRV S01] for release)

Supplemental explanation:

- When the large signal system power supply is in OFF state, there will be no PD, except PS_PD, as the PD signal has been muted.
- If the clip is removed in the OFF state of the large signal system power supply, PD will take place at the instance of clip removal. Therefore, be sure to remove the clip after turning the power OFF.
- Under RS232C command control, [DRVS01] (release) is possible during power ON. However, there is a possibility of damaging the set. Therefore, make this operation only after turning the power OFF.
- Command [DRVS00/S01] is effective even during standby. When the main power is turned OFF, however, [DRVS01] (release) will be effective.



10.4 LED INFORMATION

LED Pattern

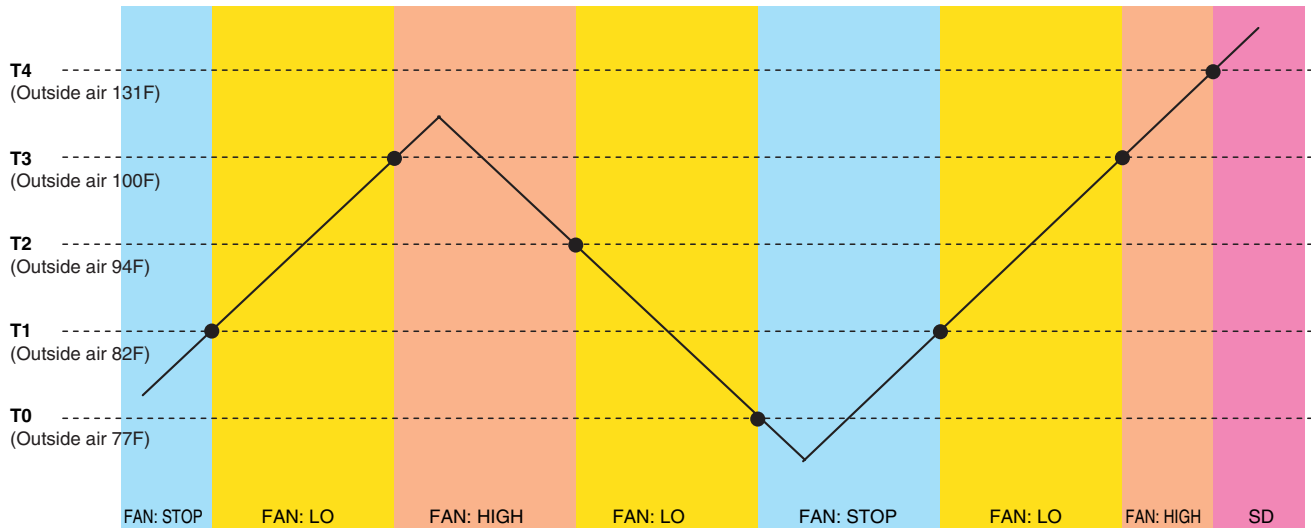


State	LED Pattern
AC OFF or Main power switch OFF	Blue Red Orange
Standby management	Blue Red Orange
Power ON	Blue Red Orange
Power-down	
Shutdown	
No digital adjustment data copied for backup	
In the process of rewriting the program of the microcomputer	
Trap switch	Blue Red Orange
During reservation video recordings (Unit: Standby)	Blue Red Orange
During reservation video recordings (Unit: ON)	Blue Red Orange
RS-232C <=> SR+ switch	

10.5 SPECIFICATION ABOUT THE THERMAL PROTECTION

* The change of HI / LO have hysteresis curve below.

Reading Value of The Sensor and FAN Drive.



Assign			AD Value 10bit	AD Value 8bit	Sensor Temp.	Aims (Outside Air)	
Pin 76	TEMP2	T4 setting	424	106	268F	131F	SD
		T3 setting	566	142	104F	100F	Low → High
		T2 setting	601	150	97F	94F	High → Low
		T1 setting	653	163	86F	82F	STOP → Low
		T0 setting	679	170	80F	77F	Low → STOP

Operation when executing FAN control command

When executing [FCNS00], [FCNS01], [FCNS02] command, detect the FAN_NG signal. When NG is detected, it becomes shutdown. When [FCNS03] command is executed, FAN_NG detection is not operated.

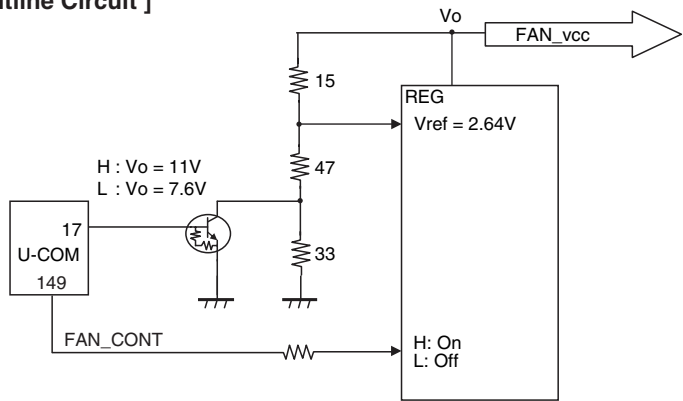
Assign	FAN: HIGH	FAN: LO	OFF
Pin 149 (FAN_CONT)	H	H	L
Pin 17 (FAN_CONT_POW)	H	L	—

This model control the FAN drive by pin 149 (FAN ON / OFF) and pin 17 (Change of FAN control voltage) of MAIN U-com.

Set State and FAN Drive

Power	PSW1	State	Control	Fan Operation
ON OFF	ON	ON STB	According to the reading value of above table sensor. FAN_CONT: "L"	HIGH or LO OFF

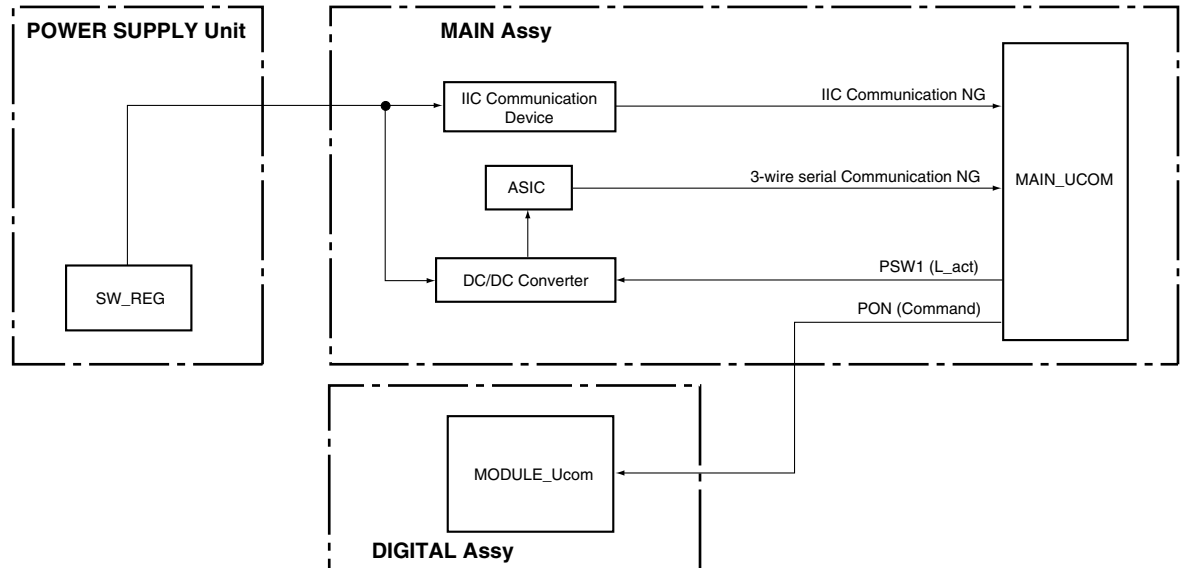
[Outline Circuit]



10.6 PROCESSING IN ABNORMALITY

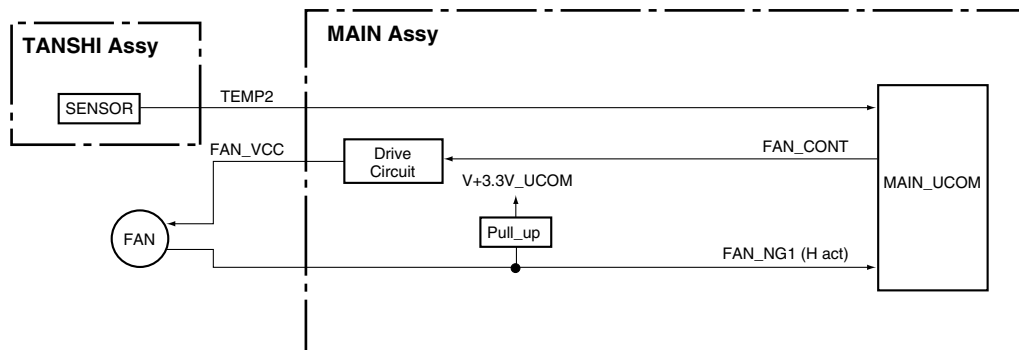
Power supply and DC-DC converter

● Circuit diagram



Fan and temperature sensor

● Circuit diagram

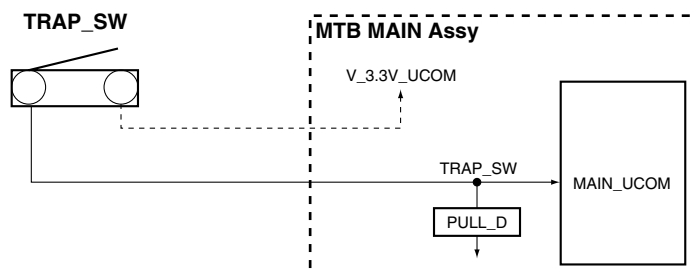


● Specifications for port monitoring

Port Name	SD/PD Indication	Assigned Pin	Active
FAN_NG 1	FAN	155	Shutdown with H
TEMP2	Abnormally high temperature in the MR	76	Shutdown when the value exceeds the predetermined value

TRAP_SW

● Circuit diagram



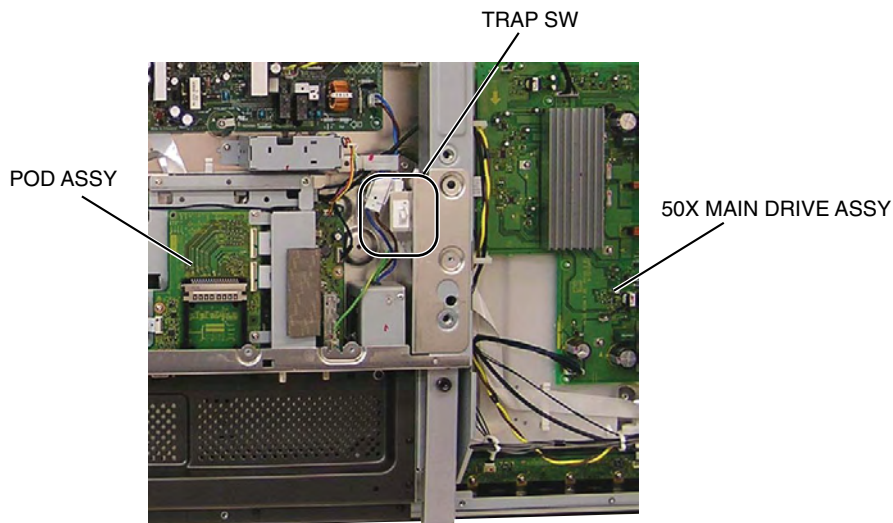
10.7 TRAP SW

● Outline and Notes

For video data transmission inside this Plasma Display, digital signals are used. Therefore, this unit adopts the HDCP (High-bandwidth Digital Content Protection) system for copyright protection. This unit is also provided with a detection switch (TRAP switch) that will prohibit the unit from being turned on again "if the upper plate of the unit is accidentally opened," in order to prevent the panel technology from being leaked out.

The TRAP switch is disabled while the unit is turned off.

When performing internal diagnosis of the PDP, fix the switch to the OFF position using adhesive tape before turning on the unit. After servicing, be sure to remove the adhesive tape.



WHEN THE TRAP SW WORKS

Just in case the TRAP SW works, the red and green LEDs may be lighting. After closing the bonnet or dealing with the TRAP SW on ahead, carry out following procedure from this state.

■ Cancelling by the remote control

- Enter to the Factory mode.
- Then, proceed to INITIALIZE layer inside the Factory mode, and then press "DISPLAY" key for more than 5 seconds.

11. SPECIFICATIONS

11.1 MAIN SPECIFICATIONS

Item		50" Plasma Display Model: PDP-5072HD/ PDP-5071HD/PDP-5070HD	
Number of pixels		1365 x 768 pixels	
Audio Amplifier		13 W + 13 W (1 kHz, 10 %, 8Ω)	
Speakers		Woofer: 4.8 cm x 13 cm cone type Tweeter: 2.5 cm semidome type	
Surround System		SRS/FOCUS/TruBass	
Power Requirement		120 V AC, 60 Hz, 351 W (26 W Standby)	
Weight		Main unit: 34.1 kg (75.2 lbs.) Stand: 4.3 kg (9.5 lbs.) (including bolts) Speaker system: 3.3 kg (7.3 lbs.) (including cables, mounting fittings and screws) Total: 41.7 kg (92 lbs.)	
Reception System (Digital)		ATSC Digital TV system	
Circuit type		8VSB/64QAM/256QAM/QPSK demodulation	
Tuner	VHF/UHF	VHF Ch. 2 to 13 UHF Ch. 14 to 69	
	CATV	Ch. 2 to 135	
Audio format		Dolby Digital	
Reception System (Analog)		American TV standard NTSC system	
Circuit type		Video signal detection PLL full synchronous detection, PLL digital Synthesizer system	
Tuner	VHF/UHF	VHF Ch. 2 to 13 UHF Ch. 14 to 69	
	CATV	ANT/CABLE A IN Ch. 1 to 135 ANT B IN Ch. 1 to 125	
Audio multiplex		BTSC system	
Terminals Rear	ANT/CABLE A IN	75Ω UNBAL, F Type for DTV/VHF/UHF/CATV in	
	ANT B IN	75Ω UNBAL, F Type for VHF/UHF/CATV in Loop out	
	INPUT 1	S-VIDEO in, VIDEO in, AUDIO in	
	INPUT 2	COMPONENT VIDEO in, S-VIDEO in, VIDEO in, AUDIO in	
	INPUT 3	COMPONENT VIDEO in, AUDIO in	
	PC	Analog RGB in, AUDIO in	
	INPUT 5	HDMI in*, AUDIO in	
	INPUT 6	HDMI in*, AUDIO in	
	MONITOR OUT	VIDEO out, AUDIO out	
	Digital Audio Output	Optical	
	G-LINK	1	
	CONTROL OUT	1	
	SPEAKER	8 Ω to 16 Ω	-
	SUB WOOFER OUTPUT	Variable	
	Cable CARD	Point of Deployment	
Side	INPUT 4	COMPONENT VIDEO in, VIDEO in, AUDIO in	
	USB	USB in**	
On-screen display languages		English/French/Spanish	

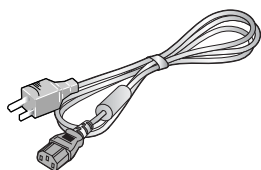
* This conforms to HDMI1.1 and HDCP1.1.

HDMI (High Definition Multimedia Interface) is a digital interface that handles both video and audio using a single cable.
HDCP (High-bandwidth Digital Content Protection) is a technology used to protect copyrighted digital contents that use the Digital Visual Interface (DVI).

** This conforms to USB 1.1 and 2.0 .

- Design and specifications are subject to change without notice.

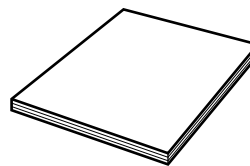
11.2 ACCESSORIES



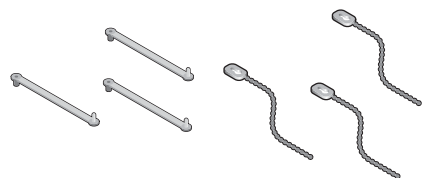
Power cord (2 m/6.6 feet)
(ADG1215)



Cleaning cloth
(AED1285)

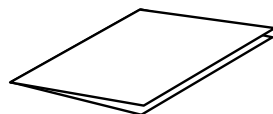


Operating instructions
(ARE1426)

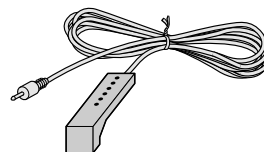


Speed clamp · 3 Bead band · 3

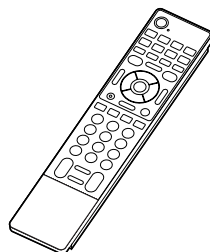
— Binder Assy (AEC1908) —



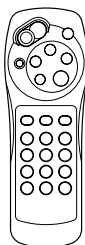
Warranty card



G-LINK cable (3 m/9.8 feet)
(VDX1010)



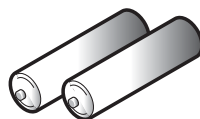
Remote control unit
(AXD1536)



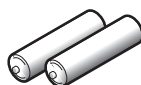
Simplified remote control unit*
(for PDP-5071HD only)
(AXD1539)



Hexagonal wrench x 1
(Diagonal size: 6 mm)
(AEF1029)



AA size battery x 2
(Alkaline battery for
remote control unit)



AAA size battery x 2
(Manganese battery for simplified
remote control unit)
(for PDP-5071HD only)

Noise filter
for antenna cable



Binder for noise filter

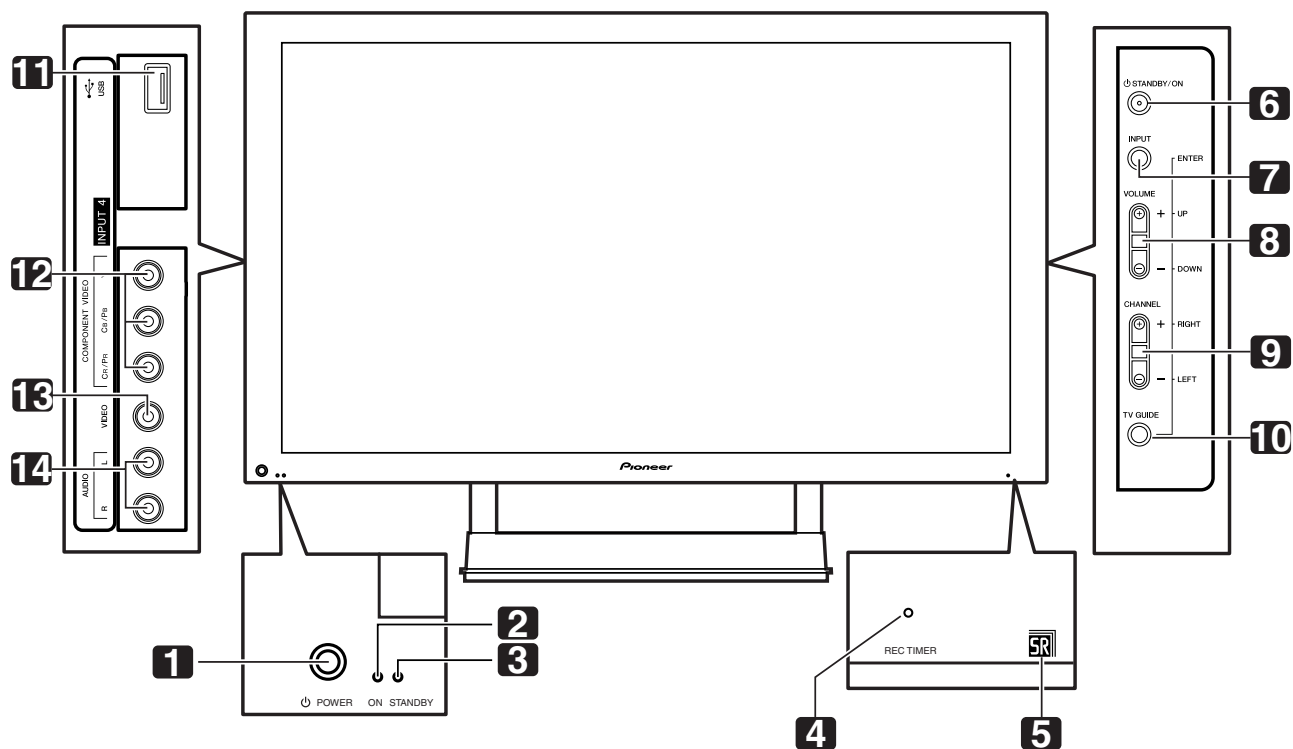
— Filter (CTX1054) —

* Buttons used for only basic operations are provided on the simplified remote control unit. You can use it as necessary.

Plasma Display

Front/side view

(PDP-5072HD/PDP-5071HD/PDP-5070HD)



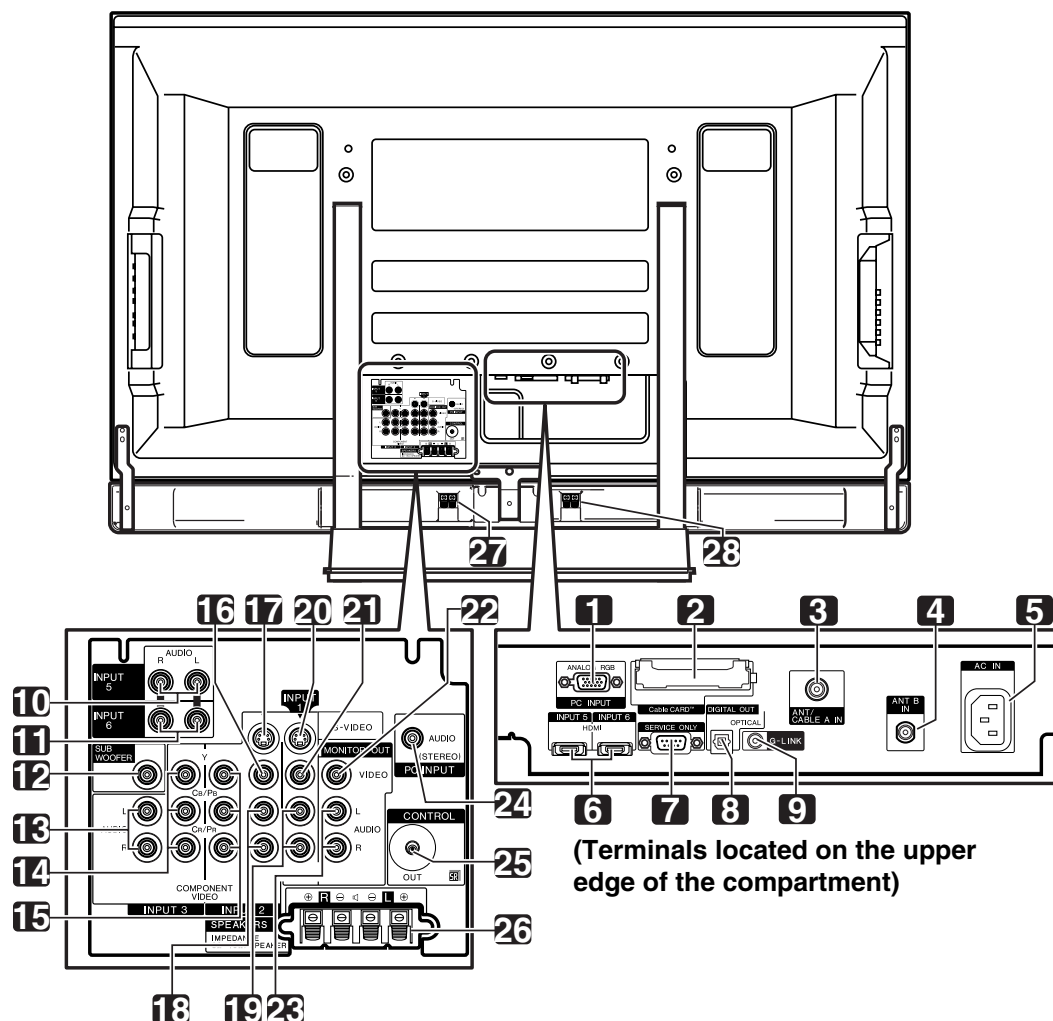
(Side view)

- 1 **POWER** button
- 2 POWER ON indicator
- 3 STANDBY indicator
- 4 REC TIMER indicator
- 5 Remote control sensor

- 6 **STANDBY/ON** button
- 7 **INPUT** button (**ENTER** button*)
- 8 **VOLUME UP/DOWN** buttons (**UP/DOWN** buttons*)
- 9 **CHANNEL UP/DOWN** buttons (**LEFT/RIGHT** buttons*)
- 10 **TV GUIDE** button*
- 11 USB port
- 12 INPUT 4 terminals (COMPONENT VIDEO: Y, CB/PB, CR/PR)
- 13 INPUT 4 terminal (VIDEO)
- 14 INPUT 4 terminals (AUDIO)

The buttons with asterisks (*) can operate the TV Guide On Screen™ system.

Rear view
(PDP-5072HD/PDP-5071HD/PDP-5070HD)

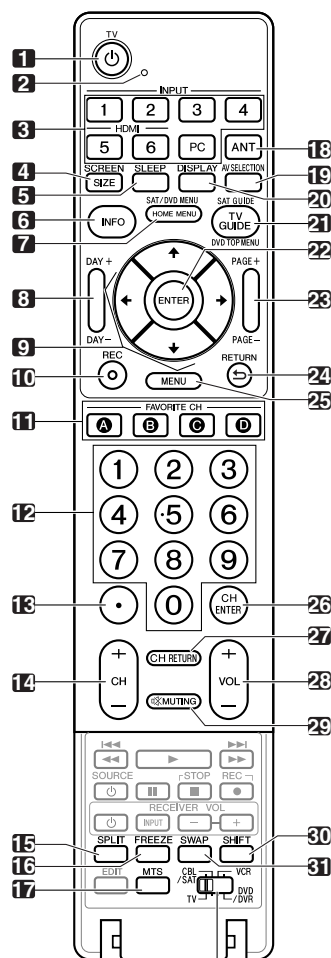


(Terminals located on the upper edge of the compartment)

- | | |
|---|---|
| 1 PC INPUT terminal (ANALOG RGB) | 15 INPUT 2 terminals (COMPONENT VIDEO: Y, CB/PB, CR/PR) |
| 2 CableCARD™ slot | 16 INPUT 2 terminal (VIDEO) |
| 3 ANT/CABLE A IN terminal | 17 INPUT 2 terminal (S-VIDEO) |
| 4 ANT B IN terminal | 18 INPUT 2 terminals (AUDIO) |
| 5 AC IN terminal | 19 INPUT 1 terminals (AUDIO) |
| 6 HDMI terminals (INPUT 5/INPUT 6) | 20 INPUT 1 terminal (S-VIDEO) |
| 7 RS-232C terminal
(used for factory setup) | 21 INPUT 1 terminal (VIDEO) |
| 8 DIGITAL OUT terminal (OPTICAL) | 22 MONITOR OUT terminal (VIDEO) |
| 9 G-LINK terminal | 23 MONITOR OUT terminals (AUDIO) |
| 10 INPUT 5 terminals (AUDIO) | 24 PC INPUT terminal (AUDIO) |
| 11 INPUT 6 terminals (AUDIO) | 25 CONTROL OUT terminal |
| 12 SUB WOOFER terminal | 26 SPEAKER (R/L) terminals |
| 13 INPUT 3 terminals (AUDIO) | 27 SPEAKER (R) terminal (Speaker side) |
| 14 INPUT 3 terminals (COMPONENT VIDEO: Y, CB/PB, CR/PR) | 28 SPEAKER (L) terminal (Speaker side) |

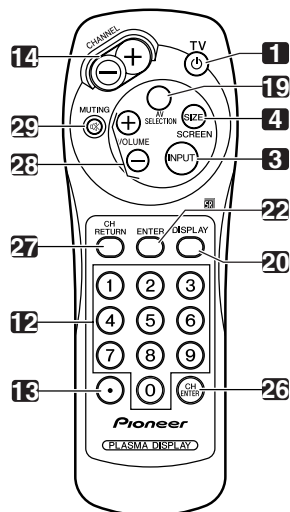
Remote control unit

This section describes the functions of the buttons available when the mode switch has been set to TV. For the buttons for controlling other equipment, see "Using the remote control unit to control other devices" starting .



Mode switch
(with "TV" selected)

Simplified remote control unit (PDP-5071HD/PDP-4271HD only)



- 1 **TV** : Turns on the power to the Plasma Display System or places it into standby mode.
- 2 Transmission confirmation LED
- 3 **INPUT**: Selects an input source of the Plasma Display System. (INPUT 1, INPUT 2, INPUT 3, INPUT 4, INPUT 5, INPUT 6 and PC) (With the simplified remote control unit, **INPUT** toggles between ANT-A, ANT-B, INPUT 1, INPUT 2, INPUT 3, INPUT 4, INPUT 5, INPUT 6 and PC.)
- 4 **SCREEN SIZE**: Selects the screen size.
- 5 **SLEEP**: Sets the sleep timer.
- 6 **INFO**: Displays a channel banner when a TV program is being watched.
When the TV Guide On Screen™ system is in operation, displays information about the currently highlighted channel (if available).
- 7 **HOME MENU**: Displays the Home Menu screen.
- 8 **DAY +/-**: Jumps to the next or previous day of program listings in the TV Guide On Screen™ Listing service.
- 9 **↑/↓/←/→**: Selects a desired item on the menu screen.
- 10 **REC**: When using the TV Guide On Screen™ System, starts recording with a connected VCR.
- 11 **FAVORITE CH (A, B, C, D)**:
Selects any of the four preset channels. for details to set the FAVORITE CH.
While watching, you can toggle the set channels by pressing **A**, **B**, **C** and **D**.
- 12 **0 - 9**: Selects the channel.
- 13 **•(dot)**: Enters a dot.
- 14 **CH +/-**: Selects the channel.
- 15 **SPLIT**: Switches the screen mode among 2-screen, picture-in-picture, and single-screen.
- 16 **FREEZE**: Freezes a frame from a moving image. Press again to cancel the function.
- 17 **MTS**: Selects MTS/SAP or language depending on the program being watched.
- 18 **ANT**: Selects the antenna (A, B). for details.
- 19 **AV SELECTION**: Selects audio and video settings. (AV mode: STANDARD, DYNAMIC, MOVIE, GAME, USER. PC mode: STANDARD, USER.)
- 20 **DISPLAY**: Displays the channel information.
- 21 **TV GUIDE**: Displays the TV Guide On Screen™ system.
- 22 **ENTER**: Executes a command.
- 23 **PAGE +/-** (for the TV Guide On Screen™ system):
Scrolls the program listing screen vertically.
- 24 **RETURN**: Returns to the previous menu screen.
- 25 **MENU**: Displays a panel menu in the TV Guide On Screen™ system.
- 26 **CH ENTER**: Executes a channel number.
- 27 **CH RETURN**: Returns to the previous channel. This button is disabled while the TV Guide On Screen™ system is displayed.
- 28 **VOL +/-**: Sets the volume.
- 29 **MUTING**: Mutes the sound.
- 30 **SHIFT**: Moves the location of the small screen when in the picture-in-picture mode.
- 31 **SWAP**: Switches between the two screens when in the 2-screen or picture-in-picture mode.

Luminous remote control buttons (main unit only)

All buttons on the main remote control unit are luminous and gather and store light. This enables quick access to the desired function when performing operations in dark places.

NOTE

- When using the remote control unit, point it at the Plasma Display.
- for operating buttons not listed on this page.

12. IC INFORMATION

A • The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

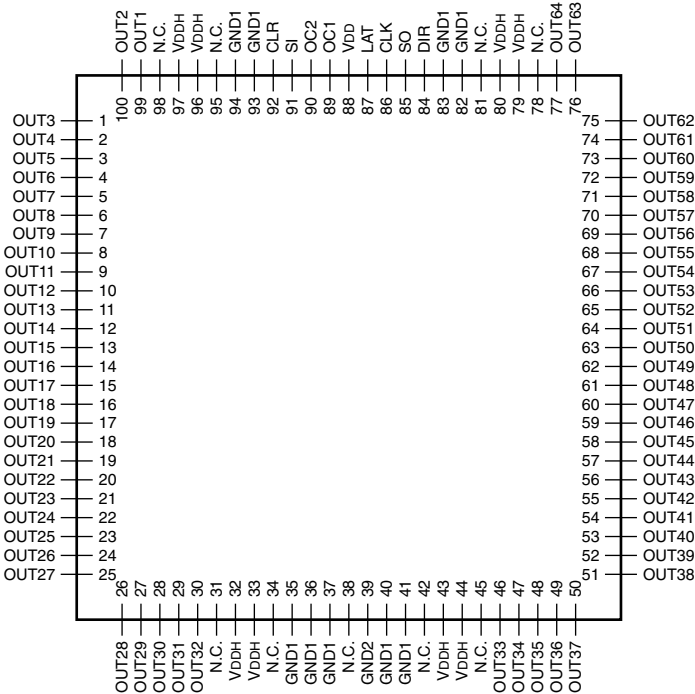
• List of IC

SN755870KPZT, BCM7038KPB1G-B2, R5520H001B, R2S11002AFT, R2S11001FT, UPD64015AGM-UEM, AD9985KSTZ-110, SII9023CTU

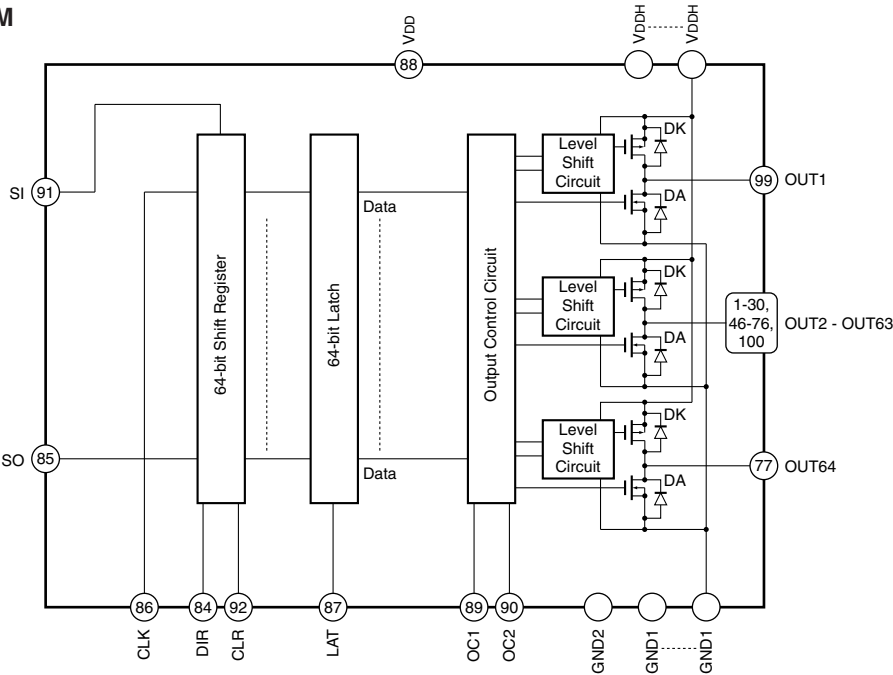
■ ■ SN755870KPZT (50 SCAN A ASSY : IC2801 - IC2806)
(50 SCAN B ASSY : IC2901 - IC2906)

• PLASMA DISPLAY PANEL IC

• PIN LAYOUT (Top View)



• BLOCK DIAGRAM



● PIN FUNNCTION

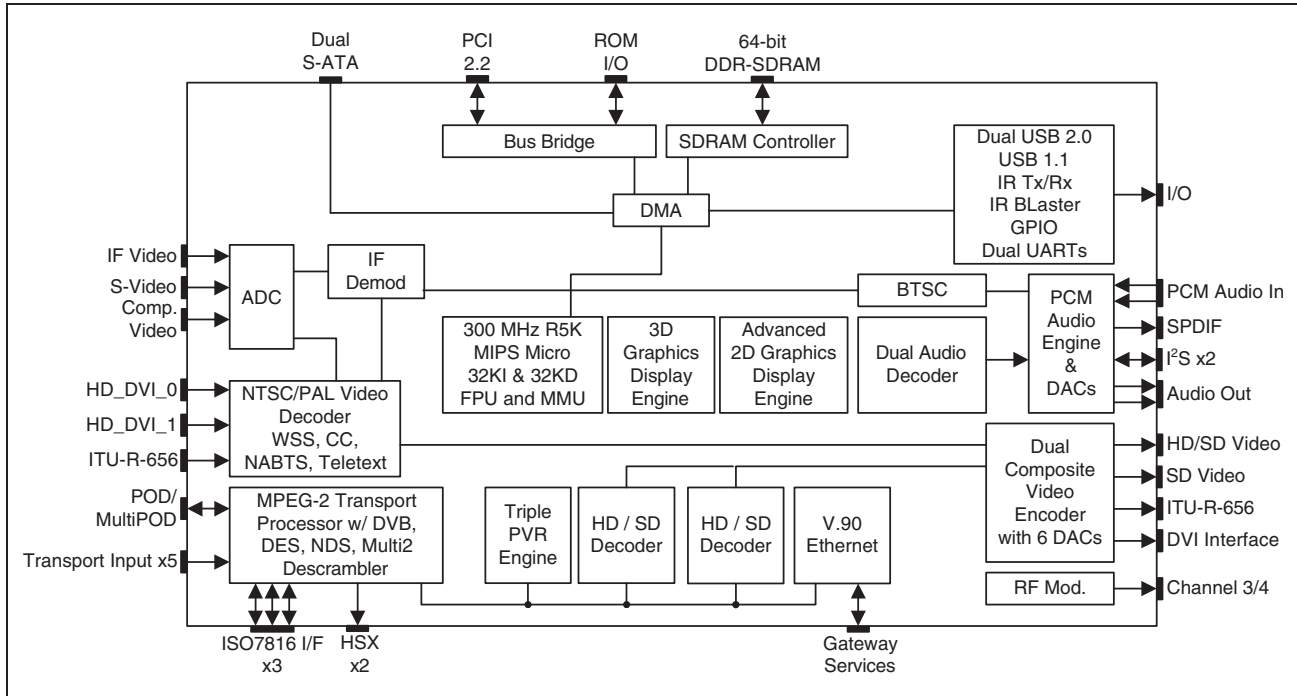
No.	Pin Name	I/O	Pin Function
1 - 30	OUT3 - OUT32	O	High-voltage push-pull output
31	N.C.	–	Not used
32 - 33	VDDH	–	Power for High-voltage circuit
34	N.C.	–	Not used
35 - 37	GND1	–	GND
38	N.C.	–	Not used
39	GND2	–	GND
40 - 41	GND1	–	GND
42	N.C.	–	Not used
43 - 44	VDDH	–	Power for High-voltage circuit
45	N.C.	–	Not used
46 - 77	OUT33 - OUT64	O	High-voltage push-pull output
78	N.C.	–	Not used
79 - 80	VDDH	–	Power for High-voltage circuit
81	N.C.	–	Not used
82 - 83	GND1	–	GND
84	DIR	I	Setting the shift direction of shift-register L : reverse side shift (SO→SI), H : forward side shift (SI→SO)
85	SO	I/O	Serial data In/Out
86	CLK	I	Serial clock Input Down-side edge trigger
87	LAT	I	LAT data Input L : The data of shiftregister is transferred to ouput latch. H : The ouput data of latch is holded.
88	VDD	–	Power for Logic circuit
89	OC1	I	Output control Output is controlled by truth table right side.
90	OC2	I	
91	SI	I/O	Serial data In/Out
92	CLR	I	All output reset CLR terminal : L → normal operation, CLR terminal : H→ All output "H"
93 - 94	GND1	–	GND
95	N.C.	–	Not used
96 - 97	VDDH	–	Power for High-voltage circuit
98	N.C.	–	Not used
99 - 100	OUT1 - OUT2	O	High-voltage push-pull output

BCM7038KPB1G-B2 (MAIN ASSY : IC6201)

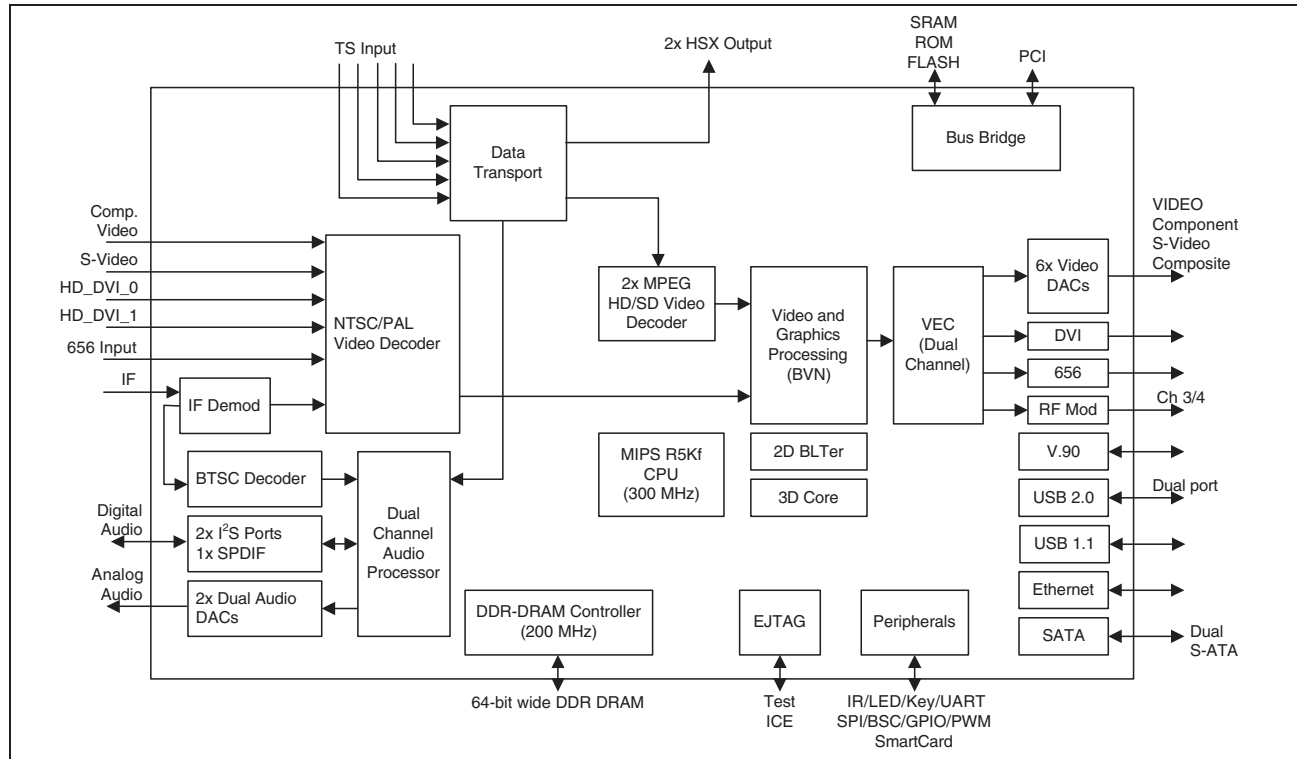
• System IC

● BLOCK DIAGRAM

[System Block Diagram]



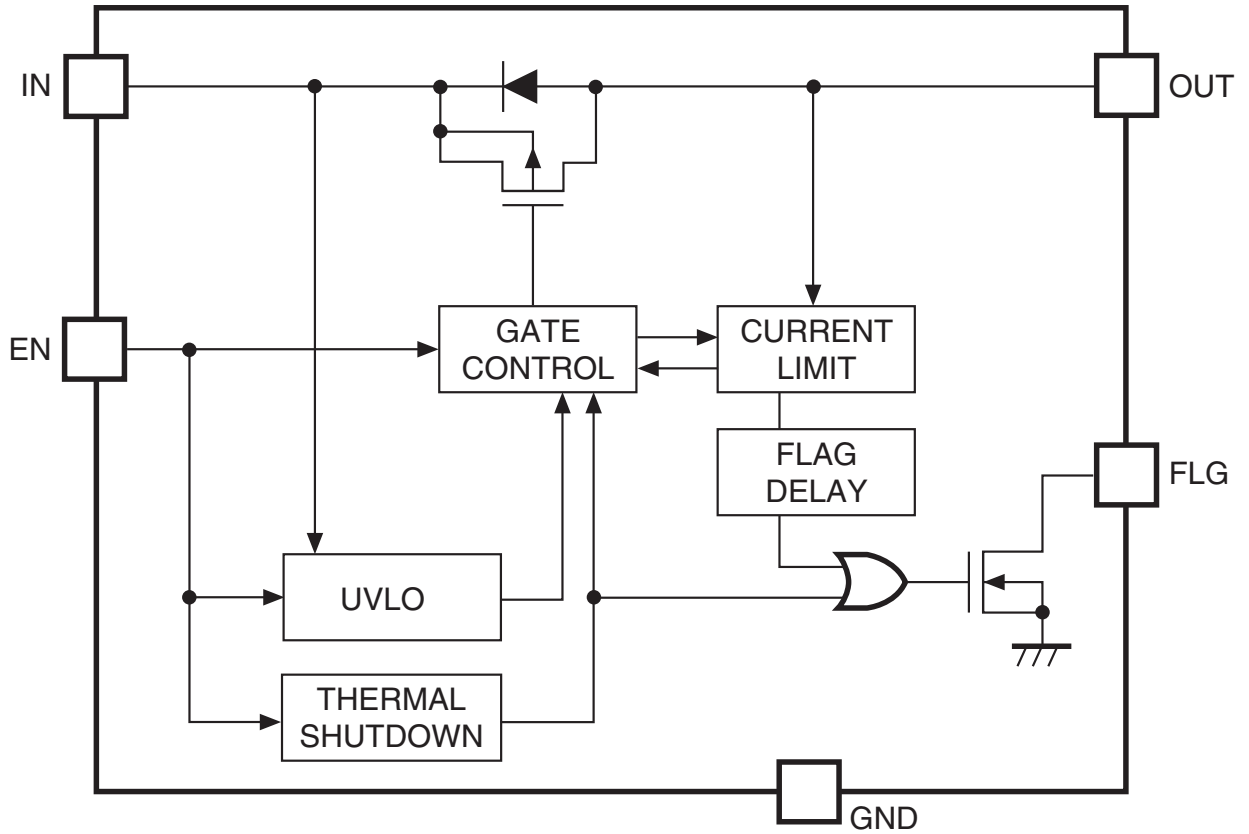
[Functional Block Diagram]



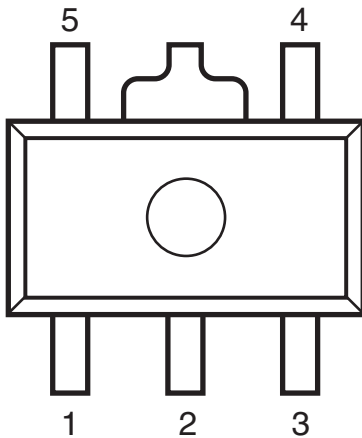
■ R5520H001B (MAIN ASSY : IC7105)

• USB HIGH-SIDE SW IC

● BLOCK DIAGRAM



● PIN LAYOUT



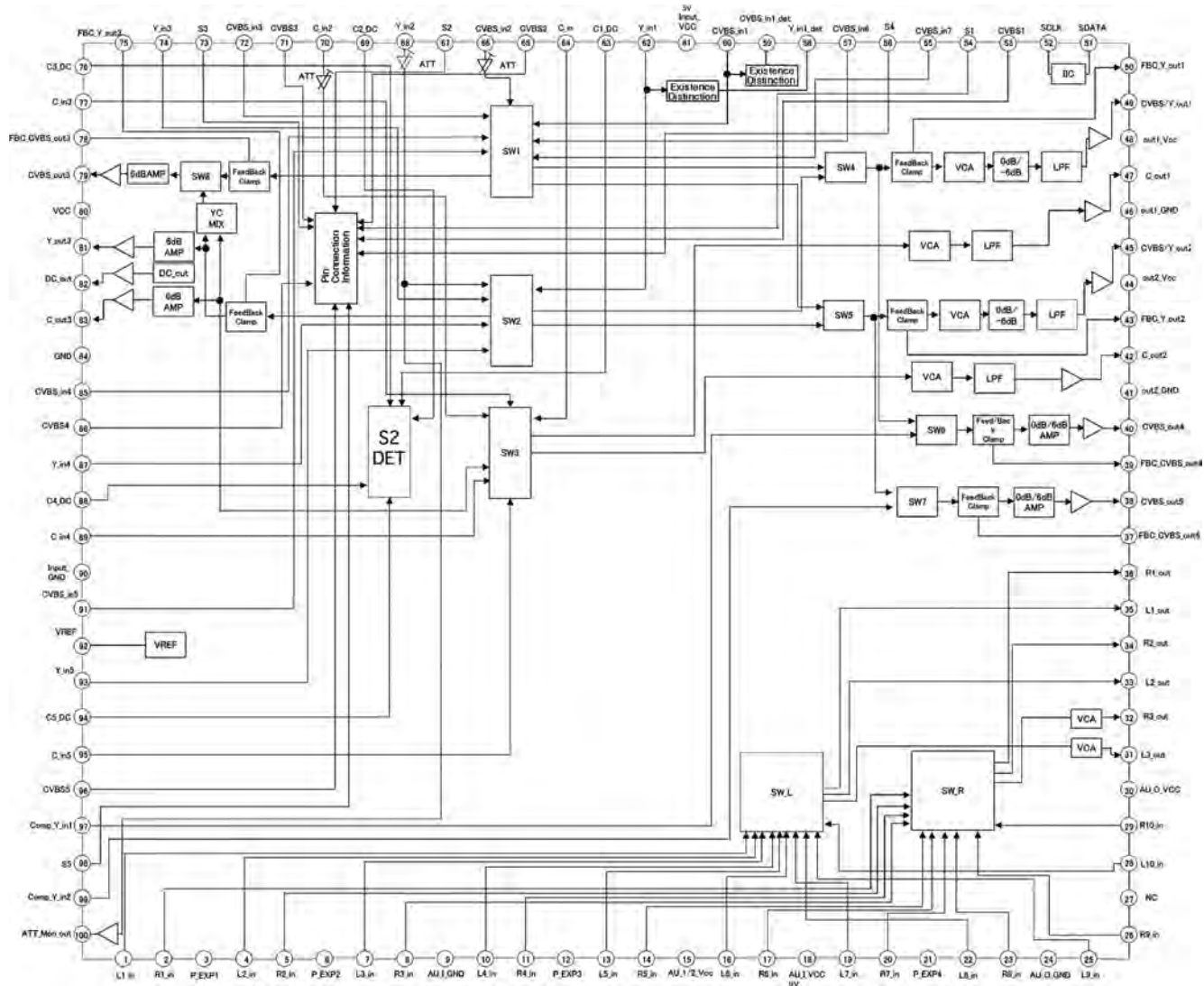
● PIN FUNCTION

Pin No.	Name	Function
1	EN	Enable terminal
2	GND	GND terminal
3	FLG	FLAG terminal (Open-drain output)
4	IN	Power input terminal
5	OUT	Output terminal

R2S11002AFT (MAIN ASSY: IC4701)

• AV SW

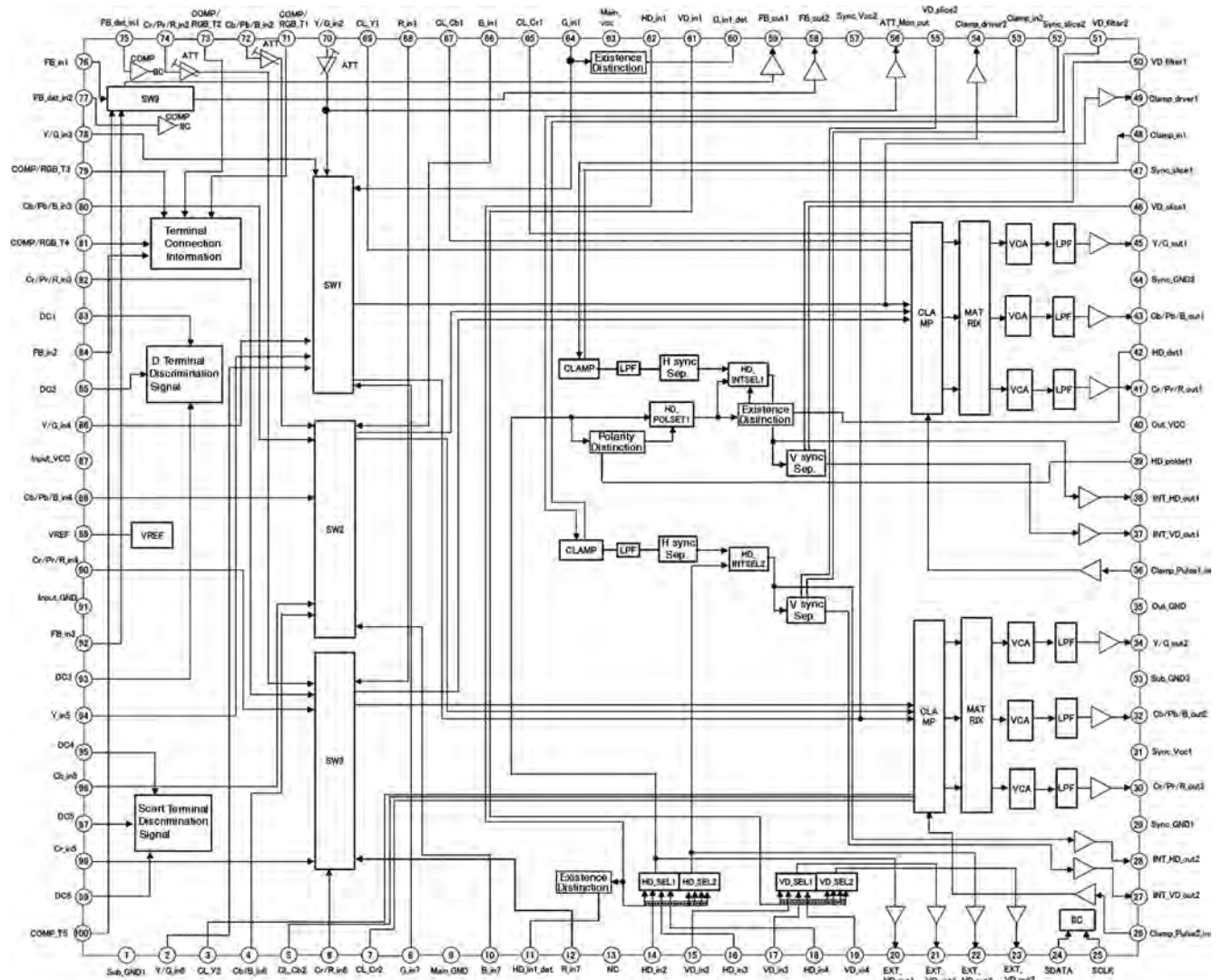
Block Diagram



R2S11001FT (MAIN ASSY: IC4901)

• Component SW IC

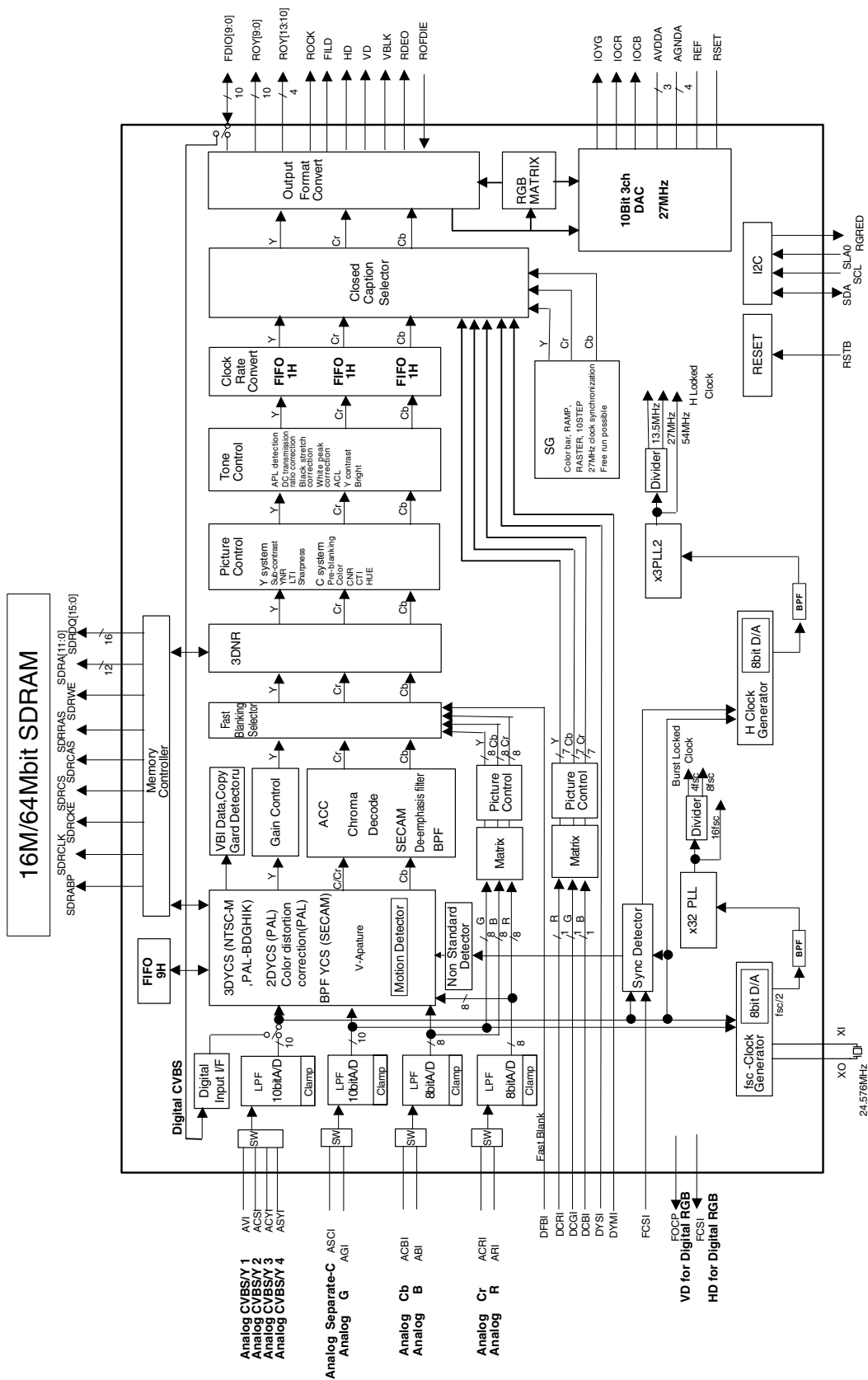
Block Diagram



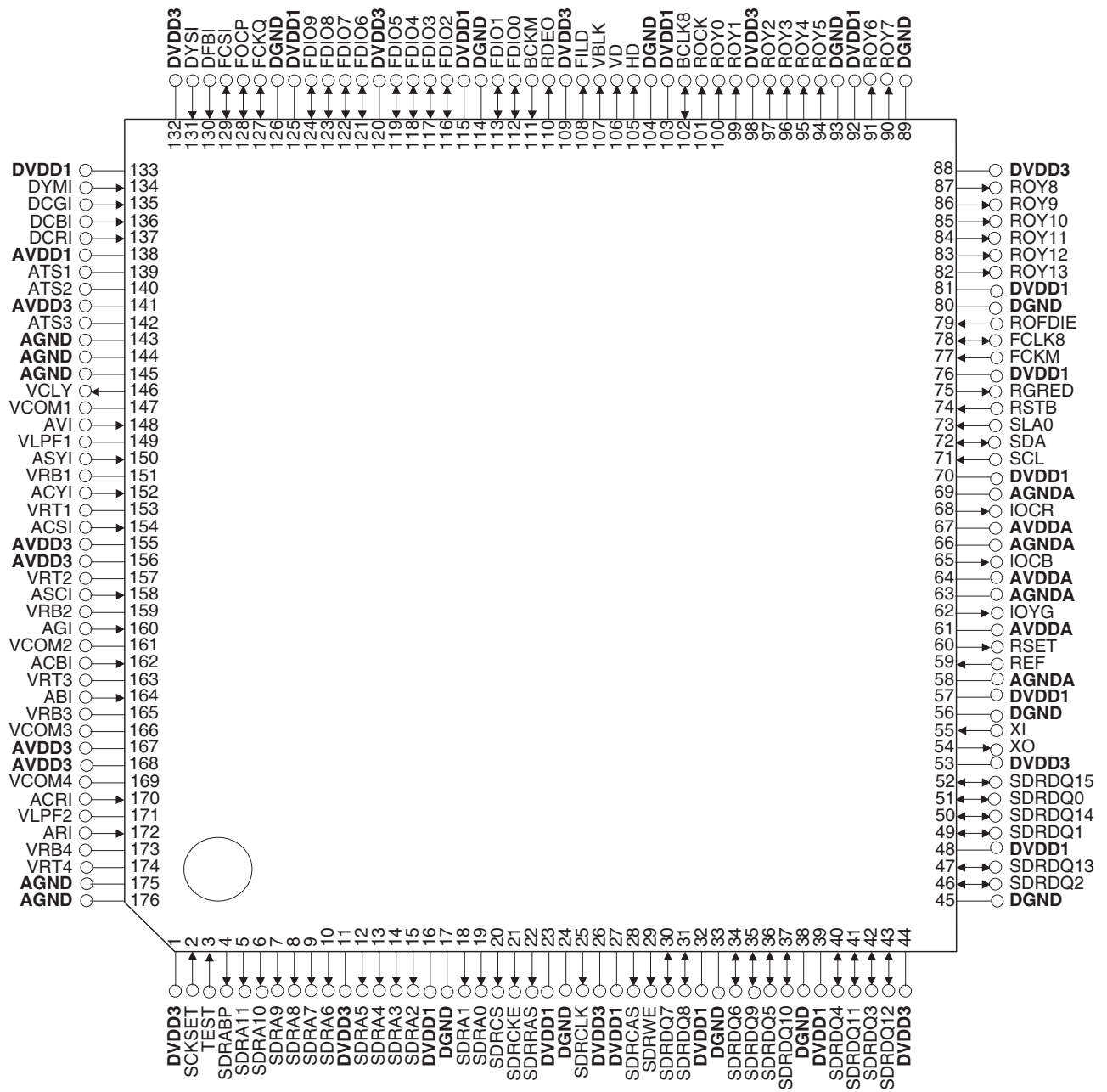
■ UPD64015AGM-UEM (MAIN ASSY : IC5101)

● Video decoder (for main screen)

● Block Diagram



● Pin Arrangement (Top View)



● Pin Function

2.1 Power supply/ground terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
AVDD1	138	—	—	—	Analog 1.5V power supply Connect to the 1.5V power supply. Separate it from the other terminals via a filter.
AVDD3	141	—	—	—	Analog 3.3V power supply Connect to the 3.3V power supply. Separate it from the other terminals via a filter.
	155,156,167,168	—	—	—	Analog 3.3V power supply for ADC. Connect to the 3.3V power supply. Separate it from the other power lines via a filter.
AVDDA	61,64,67	—	—	—	Analog 3.3V power supply for DAC. Connect to the 3.3V power supply. Separate it from the other power lines via a filter.
AGND	143,144,145,175,176	—	—	—	Analog ground
AGNDA	58,63,66,69	—	—	—	Analog ground (for DAC)
DVDD1	16,23,27,32,39,48, 57,70,76,81,92,103, 115,125,133	—	—	—	Digital 1.5V power supply Connect to the 1.5V power supply.
DVDD3	1,11,26,44,53,88,98, 109,120,132	—	—	—	Digital 3.3V power supply Connect to the 3.3V power supply.
DGND	17,24,33,38,45,56, 80,89,93,104,114, 126	—	—	—	Digital ground

2.2 System reset terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
RSTB	74	I	Schmitt	—	System reset input (Active-Low)

● Pin Function

2.3 I2C bus interface terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
RGRED	75	O	LVTTL N-ch open drain	6 mA	I ² C register lead flag output (Active-Low)
SCL	71	I	LVTTL	Fail-safe	I ² C bus clock input Connect to the SCL line of the system.
SDA	72	I/O	LVTTL N-ch open drain	Fail-safe 6 mA	I ² C bus data input/output Connect to the SDA line of the system.
SLA0	73	I	LVTTL	—	I ² C bus slave address selection input (L : B8h/B9h, H : BAh/BBh) Connect to GND when set to low level and to DVDD3 (3.3V) when set to high level.

2.4 Terminal for test

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
SCKSET	2	I	LVTTL	—	Test mode selection (L: normal, H: test mode)
TEST	3	I	LVTTL	—	Test setting (L: normal, H: test mode)
FCKM	77	I	LVTTL	—	FCLK8 test mode selection (L: normal, H: test mode)
BCKM	111	I	LVTTL	—	Test mode selection of BCLK8 terminal. (L: normal, H: test mode)
ATS1	139	I	Analog	—	Analog test input Connect to GND normally.
ATS2	140	I	Analog	—	Analog test input Connect to GND normally.
ATS3	142	I	Analog	—	Analog test input Connect to GND normally.
VLPF1	149	O	Analog	—	Analog test output Connect to GND via a 0.1μF capacitor.
VLPF2	171	O	Analog	—	Analog test output Connect to GND via a 0.1μF capacitor.

Caution: Connect these terminals for test to GND unless otherwise instructed.

● Pin Function

2.5 Clock generator terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
XI	55	I	Analog	—	Reference clock input Connect 24.576MHz crystal oscillator.
XO	54	O	Analog	—	Reference clock output Connect 24.576MHz crystal oscillator.
BCLK8	102	I/O	LVTTL 3-state	6 mA	Subsequent stage line lock clock monitor input/output It will become Hi-Z when BCK8OUT (SA1Fh, D5)=0. Normally, set to BCK8OUT=0 and leave it open.

2.6 Terminal for μPD64031A and μPD64032 digital connection

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
FCLK8	78	I/O	LVTTL 3-state	6 mA	Front stage burst lock clock input/output It will become Hi-Z when FCK8S[2:0] (SA21h, D6-D4)=000b. Normally, set to FCK8S[2:0]=0 and leave it open.
FCKQ	127	I/O	LVTTL 3-state	3 mA	Sampling clock output for μPD64031A and μPD64032 digital connection. It will become Hi-Z when FCKQS[2:0] (SA21h, D2-D0)=000b. Normally, set to FCKQS[2:0]=0 and leave it open.
FOCP	128	I/O	LVTTL 3-state	3 mA	Clamp pulse output for μPD64031A and μPD64032 digital connection/timing output (VD) for digital RGB input. It will become Hi-Z when FOCPS[2:0] (SA23h, D2-D0)=000b. Normally, set to FOCPS[2:0]=0 and leave it open.

2.7 Terminal for RGB input

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
DFBI	130	I	LVTTL	—	Fast Blanking signal input for analog RGB input.
DYSI	131	I	LVTTL	—	YS signal input for digital RGB input.
DYMI	134	I	LVTTL	—	YM signal input for digital RGB input.
DCGI	135	I	LVTTL	—	Digital RGB/G signal input
DCBI	136	I	LVTTL	—	Digital RGB/B signal input
DCRI	137	I	LVTTL	—	Digital RGB/R signal input
FCSI	129	I/O	LVTTL 3-state	3 mA	Sync separation signal input/timing output (HD) for RGB input. It will become Hi-Z when FCSIS[2:0] (SA22h, D2-D0)=000b. Normally, set to FCSIS[2:0]=0 and leave it open.

● Pin Function

2.8 ADC1 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
AVI	148	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
ASYI	150	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
ACYI	152	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
ACSI	154	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
VCLY	146	O	Analog	—	ADC1 clamp electric potential Connect to GND via 0.1μF and 10μF capacitors.
VCOM1	147	I	Analog	—	ADC1 in-phase reference voltage Connect to GND via a 0.1μF capacitor.
VRB1	151	I	Analog	—	ADC1 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VRT1	153	I	Analog	—	ADC1 top reference voltage Connect to GND via a 0.1μF capacitor.

2.9 ADC2 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
ASCI	158	I	Analog	—	ADC2 separate C signal input Input the image signal by cutting the capacity.
AGI	160	I	Analog	—	ADC2 RGB component G signal input Input the image signal by cutting the capacity.
VRT2	157	I	Analog	—	ADC2 top reference voltage Connect to GND via a 0.1μF capacitor.
VRB2	159	I	Analog	—	ADC2 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VCOM2	161	I	Analog	—	ADC2 in-phase reference voltage Connect to GND via a 0.1μF capacitor.

● Pin Function

2.10 ACD3 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
ACBI	162	I	Analog	—	ADC3 color difference component Cb signal input Input the image signal by cutting the capacity.
ABI	164	I	Analog	—	ADC3 RGB component B signal input Input the image signal by cutting the capacity.
VRT3	163	I	Analog	—	ADC3 top reference voltage Connect to GND via a 0.1μF capacitor.
VRB3	165	I	Analog	—	ADC3 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VCOM3	166	I	Analog	—	ADC3 in-phase reference voltage Connect to GND via a 0.1μF capacitor.

2.9 ACD4 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
ACRI	170	I	Analog	—	ADC4 color difference component Cr signal input Input the image signal by cutting the capacity.
ARI	172	I	Analog	—	ADC3 RGB component R signal input Input the image signal by cutting the capacity.
VCOM4	169	I	Analog	—	ADC4 in-phase reference voltage Connect to GND via a 0.1μF capacitor.
VRB4	173	I	Analog	—	ADC4 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VRT4	174	I	Analog	—	ADC4 top reference voltage Connect to GND via a 0.1μF capacitor.

2.12 DAC section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
IO-YG	62	O	Analog	—	Color difference component Y/RGB component G output signal. Connect to AGNDA via a 200Ω load resistance.
IO-CR	68	O	Analog	—	Color difference component Cr/RGB component R output signal. Connect to AGNDA via a 200Ω load resistance.
IO-CB	65	O	Analog	—	Color difference component Cb/RGB component B output signal. Connect to AGNDA via a 200Ω load resistance.
REF	59	I	Analog	—	External reference input pin. Supply 1.0V. And, connect to AGNDA via a 0.1μF capacitor.
RSET	60	O	Analog	—	Connect to AGNDA via a 620Ω resistor for external adjustment.

● Pin Function

2.13 Digital image input/output terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
FDIO0-FDIO9	112,113,116, 117,118,119, 121,122,123, 124	I/O	LVTTL 3-state	6 mA	Digital 8/10 bit Cb, Cr output/input at the time of μ PD64031A digital connection. It will become Hi-Z when FDIOS[2:0] (SA22h, D6-D4)=000b. Leave it open when not in use.
ROCK	101	O	LVTTL 3-state	6 mA	Clock for digital ITU-R BT.656/component output.
ROY0-ROY13	100,99,97,96, 95,94,91,90, 87,86,85,84, 83,82	O	LVTTL 3-state	6 mA	Digital ITU-R BT.656/component output. Digital RGB component (8 bit) output
ROFDIE	79	I	LVTTL	—	Image input/output terminal output enable. The state of ROY[13:0], ROCK, HD, VD, VBLK, FILD and RDEO terminals is controlled. L: Output terminal Hi-Z, H: Output enable Normally, pull up to 3.3V.

2.14 timing output terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
HD	105	O	LVTTL 3-state	3 mA	Horizontal sync signal output
VD	106	O	LVTTL 3-state	3 mA	Vertical sync signal output
VBLK	107	O	LVTTL 3-state	3 mA	V blanking output
FILD	108	O	LVTTL 3-state	3 mA	Field output
RDEO	110	O	LVTTL 3-state	3 mA	Effective pixel range output

● Pin Function

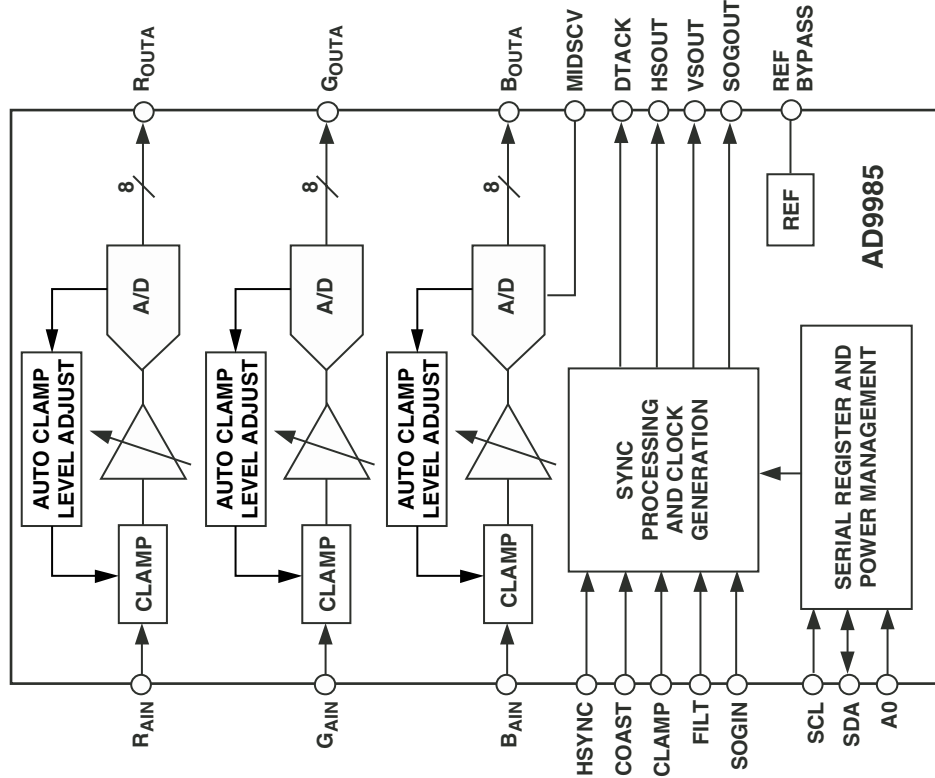
2.15 Memory interface terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
SDRABP	4	O	LVTTL 3-state	3 mA	All bank pre-charge output for external memory (Active-High)
SDRCLK	25	O	LVTTL 3-state	9 mA	Clock output for external memory
SDRCKE	21	O	LVTTL 3-state	3 mA	Clock enable output for external memory (Active-High)
SDRCS	20	O	LVTTL 3-state	3 mA	Chip select output for external memory (Active-Low)
SDRCAS	28	O	LVTTL 3-state	3 mA	Column address strobe output for external memory (Active-Low)
SDRRAS	22	O	LVTTL 3-state	3 mA	Low address strobe output for external memory (Active-Low)
SDRWE	29	O	LVTTL 3-state	3 mA	Write enable output for external memory (Active-Low)
SDRA0 -SDRA11	19,18,15,14, 13,12,10,9,8, 7,6,5	O	LVTTL 3-state	3 mA	Address output for external memory Insert a damping resistor of approximately 100Ω, and connect to the SDRAM address terminal.
SDRDQ0 -SDRDQ15	51,49,46,42, 40,36,34,30, 31,35,37,41, 43,47,50,52	I/O	LVTTL 3-state	6 mA	Data input/output for external memory.

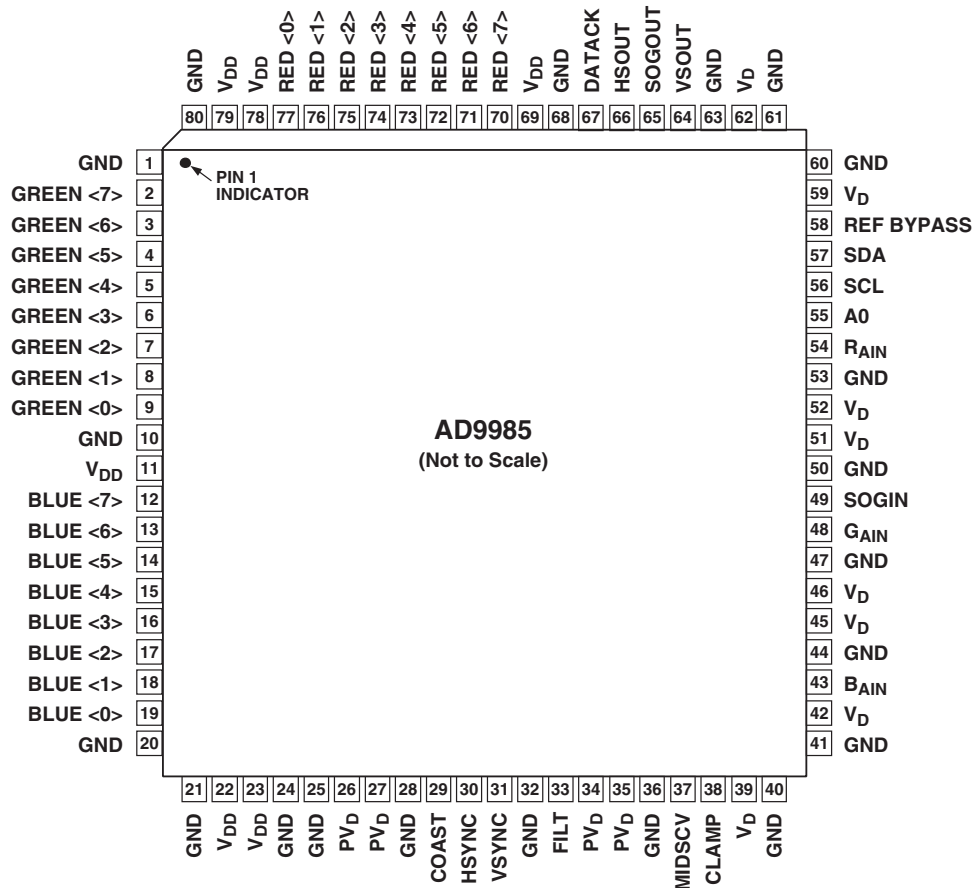
AD9985KSTZ-110-K (MAIN ASSY : IC5301)

• ADC

● Block Diagram



● Pin Arrangement (Top View)



● Pin Function

Pin Type	Mnemonic	Function	Value	Pin No.
Inputs	R _{AIN}	Analog Input for Converter R	0.0 V to 1.0V	54
	G _{AIN}	Analog Input for Converter G	0.0 V to 1.0V	48
	B _{AIN}	Analog Input for Converter B	0.0 V to 1.0V	43
	HSYNC	Horizontal SYNC Input	3.3 V CMOS	30
	VSYNC	Vertical SYNC Input	3.3 V CMOS	31
	SOGIN	Input for Sync-on-Green	0.0 V to 1.0 V	49
	CLAMP	Clamp Input (External CLAMP Signal)	3.3 V CMOS	38
	COAST	PLL COAST Signal Input	3.3 V CMOS	29
Outputs	Red [7:0]	Outputs of Converter Red, Bit 7 is the MSB	3.3 V CMOS	70–77
	Green [7:0]	Outputs of Converter Green, Bit 7 is the BSB	3.3 V CMOS	2–9
	Blue [7:0]	Outputs of Converter Blue, Bit 7 is the BSB	3.3 V CMOS	12–19
	DATAACK	Data Output Clock	3.3 V CMOS	67
	HSOUT	HSYNC Output (Phase-Aligned with DATAACK)	3.3 V CMOS	66
	VSOUT	VSYNC Output (Phase-Aligned with DATAACK)	3.3 V CMOS	64
	SOGOUT	Sync-on-Green Slicer Output	3.3 V CMOS	65
References	REF BYPASS	Internal Reference Bypass	1.25 V	58
	MIDSCV	Internal Midscale Voltage Bypass		37
	FILT	Connection for External Filter Components for Internal PLL		33
Power Supply	V _D	Analog Power Supply	3.3 V	39, 42, 45, 46, 51, 52, 59, 62
	V _{DD}	Output Power Supply	3.3 V	11, 22, 23, 69, 78, 79
	PV _D	PLL Power Supply	3.3 V	26, 27, 34, 35
	GND	Ground	0 V	1, 10, 20, 21, 24, 25, 28, 32, 36, 40, 41, 44, 47, 50, 53, 60, 61, 63, 68, 80
Control	SDA	Serial Port Data I/O	3.3 V CMOS	57
	SCL	Serial Port Data Clock (100 kHz Maximum)	3.3 V CMOS	56
	A0	Serial Port Address Input 1	3.3 V CMOS	55

● Pin Function

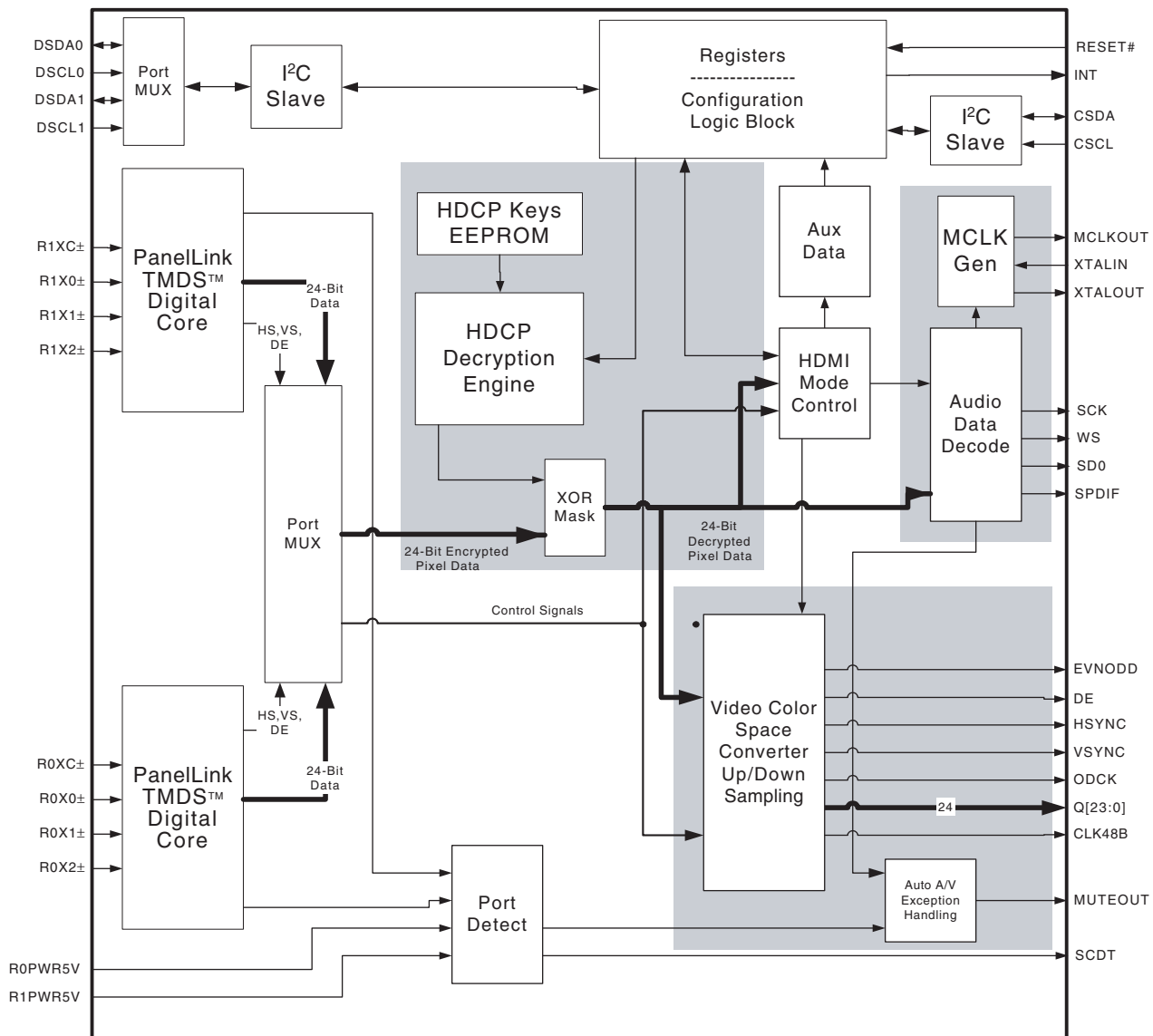
Pin Name	Function
OUTPUTS	
HSOUT	Horizontal Sync Output A reconstructed and phase-aligned version of the Hsync input. Both the polarity and duration of this output can be programmed via serial bus registers. By maintaining alignment with DATAACK and Data, data timing with respect to horizontal sync can always be determined.
VSOUT	Vertical Sync Output A reconstructed and phase-aligned version of the video Vsync. The polarity of this output can be controlled via a serial bus bit. The placement and duration in all modes is set by the graphics transmitter.
SOGOUT	Sync-On-Green Slicer Output This pin outputs either the signal from the Sync-on-Green slicer comparator or an unprocessed but delayed version of the Hsync input. See the Sync Processing Block Diagram to view how this pin is connected. (Note: Besides slicing off SOG, the output from this pin gets no other additional processing on the AD9985. Vsync separation is performed via the sync separator.)
SERIAL PORT (2-Wire)	
SDA	Serial Port Data I/O
SCL	Serial Port Data Clock
A0	Serial Port Address Input 1
For a full description of the 2-wire serial register and how it works, refer to the 2-wire serial control port section.	
DATA OUTPUTS	
RED	Data Output, Red Channel
GREEN	Data Output, Green Channel
BLUE	Data Output, Blue Channel
The main data outputs. Bit 7 is the MSB. The delay from pixel sampling time to output is fixed. When the sampling time is changed by adjusting the PHASE register, the output timing is shifted as well. The DATAACK and HSOUT outputs are also moved, so the timing relationship among the signals is maintained. For exact timing information.	
DATA CLOCK OUTPUT	
DATAACK	Data Output Clock The main clock output signal used to strobe the output data and HSOUT into external logic. It is produced by the internal clock generator and is synchronous with the internal pixel sampling clock. When the sampling time is changed by adjusting the PHASE register, the output timing is shifted as well. The Data, DATAACK, and HSOUT outputs are all moved, so the timing relationship among the signals is maintained.
INPUTS	
R _{AIN}	Analog Input for Red Channel
G _{AIN}	Analog Input for Green Channel
B _{AIN}	Analog Input for Blue Channel
High impedance inputs that accept the Red, Green, and Blue channel graphics signals, respectively. (The three channels are identical, and can be used for any colors, but colors are assigned for convenient reference.) They accommodate input signals ranging from 0.5 V to 1.0 V full scale. Signals should be ac-coupled to these pins to support clamp operation.	
HSYNC	Horizontal Sync Input This input receives a logic signal that establishes the horizontal timing reference and provides the frequency reference for pixel clock generation. The logic sense of this pin is controlled by serial Register 0EH Bit 6 (Hsync Polarity). Only the leading edge of Hsync is active; the trailing edge is ignored. When Hsync Polarity = 0, the falling edge of Hsync is used. When Hsync Polarity = 1, the rising edge is active. The input includes a Schmitt trigger for noise immunity, with a nominal input threshold of 1.5 V.
VSYNC	Vertical Sync Input The input for vertical sync.

● Pin Function

Pin Name	Function
SOGIN	<p>Sync-on-Green Input</p> <p>This input is provided to assist with processing signals with embedded sync, typically on the Green channel. The pin is connected to a high speed comparator with an internally generated threshold. The threshold level can be programmed in 10 mV steps to any voltage between 10 mV and 330 mV above the negative peak of the input signal. The default voltage threshold is 150 mV. When connected to an ac-coupled graphics signal with embedded sync, it will produce a noninverting digital output on SOGOUT. (This is usually a composite sync signal, containing both vertical and horizontal sync information that must be separated before passing the horizontal sync signal to Hsync.) When not used, this input should be left unconnected. For more details on this function and how it should be configured, refer to the Sync-on-Green section.</p>
CLAMP	<p>External Clamp Input</p> <p>This logic input may be used to define the time during which the input signal is clamped to ground. It should be exercised when the reference dc level is known to be present on the analog input channels, typically during the back porch of the graphics signal. The CLAMP pin is enabled by setting control bit Clamp Function to 1 (Register 0FH, Bit 7, default is 0). When disabled, this pin is ignored and the clamp timing is determined internally by counting a delay and duration from the trailing edge of the Hsync input. The logic sense of this pin is controlled by Clamp Polarity Register 0FH, Bit 6. When not used, this pin must be grounded and Clamp Function programmed to 0.</p>
COAST	<p>Clock Generator Coast Input (Optional)</p> <p>This input may be used to cause the pixel clock generator to stop synchronizing with Hsync and continue producing a clock at its current frequency and phase. This is useful when processing signals from sources that fail to produce horizontal sync pulses during the vertical interval. The COAST signal is generally not required for PC-generated signals. The logic sense of this pin is controlled by Coast Polarity (Register 0FH, Bit 3). When not used, this pin may be grounded and Coast Polarity programmed to 1, or tied HIGH (to V_D through a 10 k Ω resistor) and Coast Polarity programmed to 0. Coast Polarity defaults to 1 at power-up.</p>
REF BYPASS	<p>Internal Reference BYPASS</p> <p>Bypass for the internal 1.25 V band gap reference. It should be connected to ground through a 0.1 μF capacitor. The absolute accuracy of this reference is $\pm 4\%$, and the temperature coefficient is ± 50 ppm, which is adequate for most AD9985 applications. If higher accuracy is required, an external reference may be employed instead.</p>
MIDSCV	<p>Midscale Voltage Reference BYPASS</p> <p>Bypass for the internal midscale voltage reference. It should be connected to ground through a 0.1 μF capacitor. The exact voltage varies with the gain setting of the Blue channel.</p>
FILT	<p>External Filter Connection</p> <p>For proper operation, the pixel clock generator PLL requires an external filter. Connect the filter shown in Figure to this pin. For optimal performance, minimize noise and parasitics on this node.</p>
POWER SUPPLY	
V_D	<p>Main Power Supply</p> <p>These pins supply power to the main elements of the circuit. They should be filtered and as quiet as possible.</p>
V_{DD}	<p>Digital Output Power Supply</p> <p>A large number of output pins (up to 25) switching at high speed (up to 110 MHz) generates a lot of power supply transients (noise). These supply pins are identified separately from the V_D pins so special care can be taken to minimize output noise transferred into the sensitive analog circuitry. If the AD9985 is interfacing with lower voltage logic, V_{DD} may be connected to a lower supply voltage (as low as 2.5 V) for compatibility.</p>
PV_D	<p>Clock Generator Power Supply</p> <p>The most sensitive portion of the AD9985 is the clock generation circuitry. These pins provide power to the clock PLL and help the user design for optimal performance. The designer should provide quiet, noise-free power to these pins.</p>
GND	<p>Ground</p> <p>The ground return for all circuitry on-chip. It is recommended that the AD9985 be assembled on a single solid ground plane, with careful attention given to ground current paths.</p>

■ **SiI9023CTU (MAIN ASSY : IC5401)**
 • HDMI Rx

● **Block Diagram**



● Pin Arrangement (Top View)

A

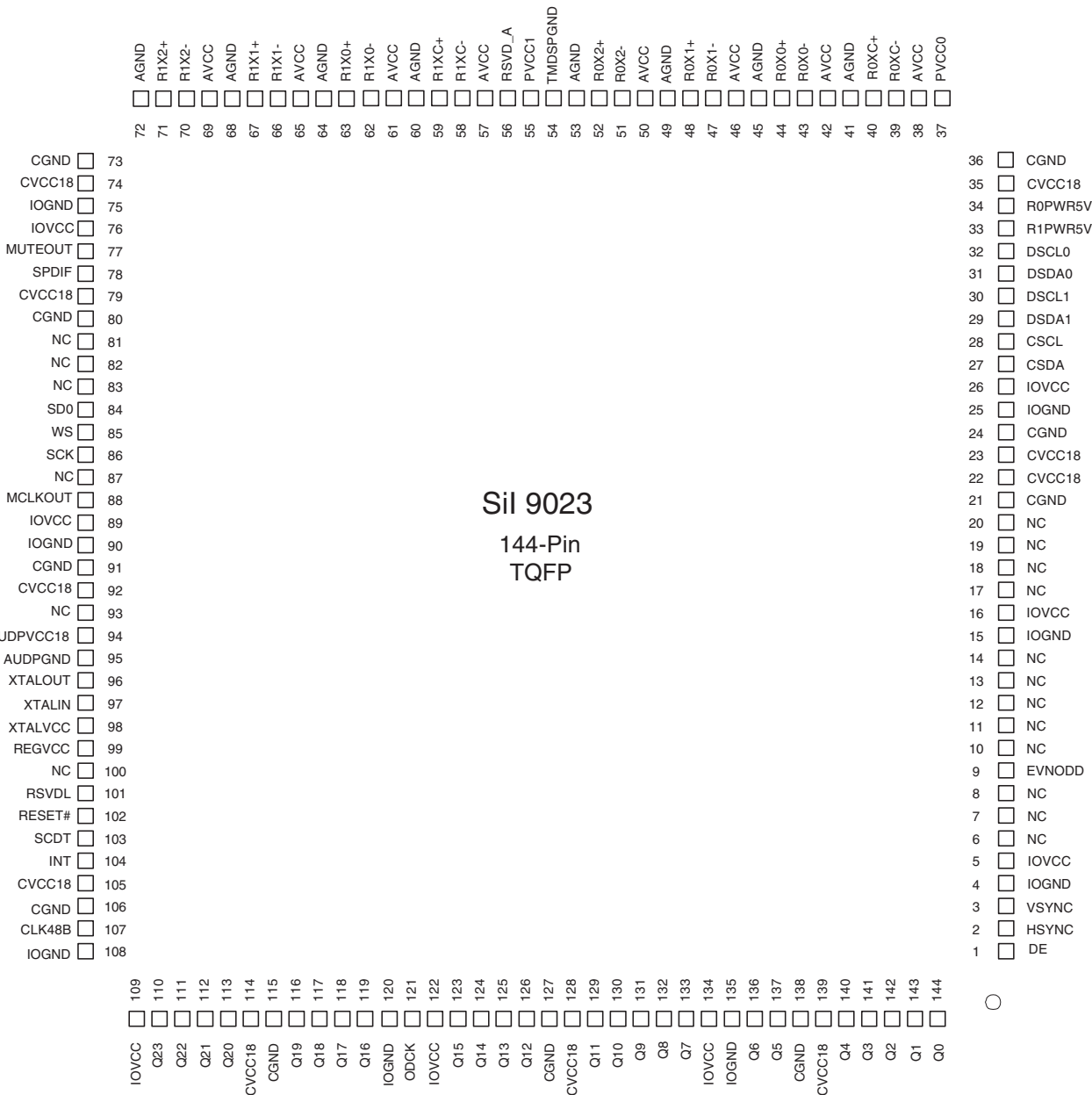
B

C

D

E

F



● Pin Function

Digital Video Output Pins

Pin Name	Pin #	Strength	Type	Dir	Description
Q0	144	8 mA	LVTTL	Output	24-bit Output Pixel Data Bus.
Q1	143		LVTTL	Output	
Q2	142		LVTTL	Output	
Q3	141		LVTTL	Output	
Q4	140		LVTTL	Output	
Q5	137		LVTTL	Output	
Q6	136		LVTTL	Output	
Q7	133		LVTTL	Output	
Q8	132		LVTTL	Output	
Q9	131		LVTTL	Output	
Q10	130		LVTTL	Output	
Q11	129		LVTTL	Output	
Q12	126		LVTTL	Output	
Q13	125		LVTTL	Output	
Q14	124		LVTTL	Output	
Q15	123		LVTTL	Output	
Q16	119		LVTTL	Output	
Q17	118		LVTTL	Output	
Q18	117		LVTTL	Output	
Q19	116		LVTTL	Output	
Q20	113		LVTTL	Output	
Q21	112		LVTTL	Output	
Q22	111		LVTTL	Output	
Q23	110		LVTTL	Output	
DE	1	12 mA	LVTTL	Output	Data enable.
HSYNC	2		LVTTL	Output	Horizontal Sync Output control signal.
VSYNC	3		LVTTL	Output	Vertical Sync Output control signal.
ODCK	121		LVTTL	Output	Output Data Clock.

● Pin Function

Digital Audio Output Pins

Pin Name	Pin #	Strength	Type	Dir	Description
XTALIN	97	—	LVTTL	In	Crystal Clock Input.
XTALOUT	96	—	LVTTL	Out	Crystal Clock Output.
MCLKOUT	88	8 mA	LVTTL	Out	Audio Master Clock Output.
SCK	86	4 mA	LVTTL	Out	I ² S Serial Clock Output.
WS	85	4 mA	LVTTL	Out	I ² S Word Select Output.
SD0	84	4 mA	LVTTL	Out	I ² S Serial Data Output.
SPDIF	78	4 mA	LVTTL	Out	S/PDIF Audio Output.
MUTEOUT	77	4 mA	LVTTL	Out	Mute Audio Output.

Configuration/Programming Pins

Pin Name	Pin #	Strength	Type	Dir	Description
INT	104	4 mA	LVTTL ¹	Out	Interrupt Output
RESET#	102	—	Schmitt	In	Reset Pin. Active LOW. 5V Tolerant.
DSCL0	32	—	Schmitt	In	DDC I ² C Clock for Port 0. 5V Tolerant.
DSDA0	31	4 mA	Schmitt	Bi-Di	DDC I ² C Data for Port 0. 5V Tolerant.
DSCL1	30	—	Schmitt	In	DDC I ² C Clock for Port 1. 5V Tolerant.
DSDA1	29	4 mA	Schmitt	Bi-Di	DDC I ² C Data for Port 1. 5V Tolerant.
CSCL	28	—	Schmitt	In	Configuration I ² C Clock. 5V Tolerant.
CSDA	27	4 mA	Schmitt	Bi-Di	Configuration I ² C Data. 5V Tolerant.
SCDT	103	12 mA	LVTTL	Out	Indicates active video at HDMI input port.
CLK48B	107	12 mA	LVTTL	Bi-Di	Data Bus Latch Enable. ²
R0PWR5V	34	—	Schmitt	In	Port 0 Transmitter Detect. 5V Tolerant.
R1PWR5V	33	—	Schmitt	In	Port 1 Transmitter Detect. 5V Tolerant.
RSVDL	101	—	LVTTL	In	Reserved, must be tied LOW.
RSVD_A	56	—	—	—	Reserved Pin, leave unconnected.
NC	6,7,8,10,11,12,13,14,17,18,19,20,81,82,83,87,93,100	—	—	—	No internal connection.
EVNODD	9	8 mA	LVTTL	Out	Indicates Even or Odd field for interlaced formats. Polarity programmable in register.

Notes:

1. The INT pin is programmable as either a push-pull LVTTL output, or as an open-drain output.
2. CLK48B is used to clock external 24-to-48 bit latches. CLK48B is also latched on the rising edge of RESET# to set the I2C device addresses for CSCL/CSDA. Refer to Table 10. CLK48B has a weak internal pull-down, and so will be latched as a LOW if not otherwise connected.

● Pin Function

Differential Signal Data Pins

Pin Name	Pin #	Type	Description	
R0XC+	40	Analog	TMDS input clock pair.	HDMI Port 0
R0XC-	39	Analog		
R0X0+	44	Analog	TMDS input data pair.	
R0X0-	43	Analog		
R0X1+	48	Analog	TMDS input data pair.	
R0X1-	47	Analog		
R0X2+	52	Analog	TMDS input data pair.	
R0X2-	51	Analog		
R1XC+	59	Analog	TMDS input clock pair.	HDMI Port 1
R1XC-	58	Analog		
R1X0+	63	Analog	TMDS input data pair.	
R1X0-	62	Analog		
R1X1+	67	Analog	TMDS input data pair.	
R1X1-	66	Analog		
R1X2+	71	Analog	TMDS input data pair.	
R1X2-	70	Analog		

Power and Ground Pins

Pin Name	Pin #	Type	Description	Supply
CVCC18	22, 23, 35, 74, 79, 92, 105, 114, 128, 139	Power	Digital Logic VCC	1.8V
CGND	21, 24, 36, 73, 80, 91, 106, 115, 127, 138	Ground	Digital Logic GND	
IOVCC	5, 16, 26, 76, 89, 109, 122, 134	Power	Input/Output Pin VCC	3.3V
IOGND	4, 15, 25, 75, 90, 108, 120, 135	Ground	Input/Output Pin GND	
AVCC	38, 42, 46, 50, 57, 61, 65, 69	Power	TMDS Analog VCC	3.3V
AGND	41, 45, 49, 53, 60, 64, 68, 72	Ground	TMDS Analog GND	
PVCC0	37	Power	TMDS Port 0 PLL VCC	3.3V
PVCC1	55	Power	TMDS Port 1 PLL VCC	3.3V
TMDSPGND	54	Ground	TMDS PLL GND	
AUDPVCC18	94	Power	ACR PLL VCC	1.8V
AUDPGND	95	Ground	ACR PLL GND	
XTALVCC	98	Power	ACR PLL Crystal Input VCC	3.3V
REGVCC	99	Power	ACR PLL Regulator VCC	3.3V